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A SURGICAL METHOD FOR THE PREVENTION OF THE "TREPANNED SKULL" SYNDROME AND THE OPTIMAL TIMING OF ITS IMPLEMENTATION IN PATIENTS WITH POST-TRAUMATIC DEFECTS OF THE CRANIAL VAULT

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Abstract:

It is known that patients with cranial arch defects, under the influence of atmospheric pressure and other provoking factors, gradually develop the "trepanned skull" syndrome, which includes several components in the form of meteopathy, asthenia, psychopathy, limb paresis, aphasia and epileptic seizures. Epileptic seizures are one of the frequent elements of the "trepanned skull" syndrome. The focal component of these seizures has a topographic localization corresponding to the localization of the bone defect. It has been established that the main cause of the development of epileptic seizures in patients with cranial arch defects is the development of an aponeurotic-meningocerebral scar in the area of the postoperative defect, which is confirmed by the development of a positive clinical effect after the operation "excision of meningocerebral scars followed by cranioplasty."

Keywords: Cranioplasty, trepanated skull syndrome

INTRODUCTION: Defects in the bones of the skull of different origins are not only a cosmetic problem, but also threaten the integrity of the brain, which becomes vulnerable at the site of deformation. As a rule, the clinical picture in such patients consists of a complex of symptoms caused, firstly, by a violation that caused damage to the bones of the skull (tumor, purulent process, trauma, hematoma, etc.), and secondly, by the so-called "trepanned skull syndrome". The second component inevitably arises under the influence of physical and psychological factors. An area devoid of a part of the skull is exposed to atmospheric pressure, the brain can be injured in the area of contact with the edges of bone tissue, cerebrospinal fluid circulation and cerebral hemodynamics are disrupted. The psychological factor is also quite significant. A person can feel the pulsation of the brain matter and acute insecurity from the influence of any factors. Often, a violation of the integrity of the skull is accompanied by paresis, epileptic seizures, psychopathies and asthenia.

RESEARCH MATERIALS AND METHODS: 117 (63 men, 54 women) patients with post-traumatic cranial arch defects were examined. In 67 (57%) patients, defects of the cranial vault remained after the operation of "decompressive trepanation of the skull" performed for a depressed fracture; in 34 (29%) patients, the defect of the cranial vault remained after the operation of cranial trefination with the removal of subdural hematoma and drainage of the hematoma cavity, and in 16 (14%) patients, the defect of the cranial vault remained after the operation of decompressive trepanation of the skull with the removal of epidural hematoma.In 83 (71%) patients, the values of post-traumatic cranial arch defects were of average magnitude (diameter up to 6 cm), and in the remaining 34 (29%) patients, the values of post-traumatic defects of the cranial vault were large (diameter greater than 6 cm).For the timely detection of signs of the "trepanated skull" syndrome, clinical neurological, electroencephalographic (computer EEG), transcranial Dopplerography (TKDG) studies were performed dynamically (every 6 months for 3 years) in all patients and for the purpose of timely detection of aponeurotic-meningocerebral scar in all patients (every 6 months) dynamic magnetic resonance imaging (MRI) studies. TKDG was produced using the universal ultrasonic device "Aloca SSD-3500". It is known that according to the timing of cranioplasty surgery, there are primary (immediately after decompressive trepanation of the skull), primary delayed (up to 7 days after decompressive trepanation of the skull), early (up to 2 months after decompressive trepanation of the skull), late (more than two months after decompressive trepanation of the skull) [9]. Based on this, in order to determine the optimal period for cranioplasty, the clinical course of post-traumatic cranial arch defects was divided into 3 periods. 1) Acute period — the first 10 days after injury. During this period, primary and

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primary delayed cranioplasty are performed; 2) Early recovery period - up to two months, after decompressive cranial trepanation - early cranioplasty; 3) Late recovery period — more than 2 months after decompressive cranial trepanation – late cranioplasty; It is known that for a long time in practical neurosurgery, an adequate way to close small and medium-sized defects of the cranial vault was considered the operation of "plasty of the defect of the cranial vault with an autosteal crumb" (3,6). However, the study of the long-term results of "plasty of the defect of the cranial vault with an autosteal crumb" showed that the bone crumb (taken from the edges of the bone defect by biting) covering the defect of the cranial vault gradually resolves, and the bone defect is filled with fibrous tissue. Resorption of bone chips leads to the development of the "trepanated skull" syndrome, which is why the method of "plastering a skull defect with an autosteal crumb" is rarely used in clinical practice.

The choice of an adequate method of cranioplasty was carried out on the basis of literature data, according to which currently, to close small and medium defects of the cranial vault, the most effective and common method of cranioplasty is "explantation of a defect of the cranial vault with radiopaque bone cements with excision of aponeurotic-sheathed cerebral scars and plasty of a defect of the dura mater with silicone film" Based on this, we this method was used. The method includes: Exposure of a bone defect, excision of aponeurotic-meningocerebral scars, plasticization of a defect of the dura mater (if any) with silicone film, manual preparation and installation of an implant made of bone cement "PALACOS-R". Primary cranioplasty, that is, primary explantation of the cranial vault defect with bone cement "PALACOS-R" was performed in 27 (40%) patients with depressed fractures of the cranial vault, the remaining 40 (60%) patients failed to perform primary plastic surgery of the cranial vault defect due to the presence of cerebral edema. That is, these patients underwent decompressive trepanation of the skull without plasty of the ventral arch defect. After appropriate conservative treatment, these patients underwent "primary-delayed explantation of a cranial arch defect with PALACOS-R bone cement" (10 days after receiving TBI). 26 (39%) patients underwent early explantation of the cranial vault defect with PALACOS-R bone cement and plasty of the dura mater defect with silicone film, and the remaining 24 (20%) patients underwent explantation of the cranial vault defect in the late period. That is, these patients with post-traumatic defects of the cranial vault underwent late cranioplasty (they applied late). Statistical processing of the obtained data was performed using descriptive methods and the ANOVA model. A comparative assessment of the change in indicators compared to the baseline level was carried out using a t-test.

RESULTS AND DISCUSSIONS: 83 (70%) patients (67 with depressed fractures, 16 with epidural hematoma) underwent "decompressive craniotomy" operations, and 34 (30%) patients underwent "cranial trefination with emptying of subdural hematoma and drainage of its cavity". That is, in 83 (70%) patients, the defect of the cranial vault remained after the operation of "decompressive trepanation of the skull", and in 34 (30%) patients, the defect of the cranial vault remained after the operation of "trefination of the skull".

Primary explantation of cranial arch defects with PALACOS R bone cement was performed in 27 (23%) patients (20 with depressed fractures, 7 with epidural hematoma). And in other patients, due to the presence of contraindications (comatose states, severe general condition, the presence of severe somatic diseases, etc.), it was not possible to perform primary plastic surgery of the cranial arch defect. After appropriate treatment of traumatic brain injury, 18 (15%) patients underwent primary delayed explantation of a skull defect with PALACOS R bone cement. The remaining 72 (62%) patients did not agree to primary delayed cranial plastic surgery.

The clinical and neurological symptoms of the acute period regressed gradually. Long-term dynamic clinical neurological computer EEG, CTG and MRI observation showed that patients who underwent primary and primary delayed explantation of skull defects with PALACOS-R bone cement did not develop trepanated skull syndrome.

In the early recovery period (up to 2 months after the operation of decompressive trepanation of the skull), a dynamic clinical and neurological study showed that 39 (33%) patients developed the "trepanated skull" syndrome, which was expressed in the form of asthenization of the nervous system and increased sensitivity to meteorological changes. Clinically, no epilepsy attacks were noted, however, the results of additional research methods showed that in all patients, a diffuse increase in epileptic brain activity was noted on the computer EEG, and during mapping, a hypometabolic site was determined by the projection of a bone defect. TCDH showed a decrease in cerebral blood flow of the 2nd degree. The data presented show that this group of patients is at risk of developing epilepsy attacks. Based on this, in order to prevent the development of epilepsy, it was decided to perform operations, excision of aponeurotic-meningocerebral scars with plasty of the cranial arch defect with bone cement "PALACOS-R" - early cranioplasty.

All patients had interoperatively detected aponeurotic-sheathed or aponeurotic-sheathed cerebral scars, which are easily corroded. All patients after early cranioplasty received conservative pathogenetic treatment with

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antihypoxants and anticonvulsants every 6 months. After a course of conservative pathogenetic treatment, the "trepanated skull" syndrome regressed in all patients, increased epileptic activity on a computer EEG and hypometabolic exercises passed, pathomorphological changes characteristic of apovneurotic-sheathed or aponeurotic-sheathed cerebral scars disappeared on MRI, cerebral blood flow normalized on TCD, no epilepsy attacks were noted. Thus, as a result of the pathogenetic conservative treatment, the "trepanned skull" syndrome regressed, that is, these patients recovered.

In the late recovery period, the "trepanned skull" syndrome developed in 24 (20%) patients. The syndrome of the "trepanned skull" in these patients was expressed in the form of asthenization of the nervous system, increased sensitivity to meteorological changes, the development of a mild hemisyndrome (in 8 (7%) patients), the appearance or increase in epileptic seizures. Epilepsy attacks in these patients developed six months later (on average after the operation of "decompressive treponation of the skull"), 9 (8%) patients had attacks of focal seizures without generalization, and in the remaining 11 (9%) patients, epilepsy attacks began with a focal component followed by generalization. The focal component of epileptic seizures in all cases topically corresponded to the site of the skull defect, and 5 (4%) patients had a primary generalized form of epilepsy. In all patients, computer EEG showed a diffuse increase in epileptic activity with the development of hypometabolism of brain tissue under the defect of the cranial vault, dynamic MRI showed an increase in aponeurotic-sheathed or aponeurotic-sheathed cerebral scars with tightening of the anterior horn or the body of the lateral ventricle (on the side of the defect). A decrease in cerebral blood flow of the 3rd degree was noted on TCDH. And in 4 (3%)% of patients with post-traumatic cranial arch defects, despite the absence of epilepsy attacks, an increase in epileptic brain activity was noted on computer EEG.

Considering that 20 (17%) patients had frequent epilepsy attacks (2-3 per week) with a diffuse increase in epileptic brain activity on EEG and dynamic MRI studies showed signs of an increase in aponeurotic-meningocerebral scars and in 4 (3%) patients, despite the absence of epilepsy attacks, diffuse EEG was noted on computer EEG increased epileptic brain activity, that is, these patients were at risk of developing epilepsy attacks. It was decided to perform the operation "explantation of the cranial arch defect with PALACOS-R bone cement" Intraoperatively in 11 (9%) patients, strengthened aponeurotic-sheathed scars were found, and in the remaining 13 (11%) patients, aponeurotic-sheathed brain scars were found. In all patients, the postoperative period proceeded smoothly, but the frequency of epileptic seizures did not decrease in any patient. In this regard, long-term conservative treatment with the use of energy-protective and anticonvulsive therapy was carried out, on average for 3 years. After the start of conservative therapy, the frequency of epilepsy attacks began to decrease after the third course of pathogenetic treatment, and after the 6th course, epilepsy attacks stopped.

CONCLUSIONS: Thus, 9 (8%) patients, despite the presence of the "trepanated skull" syndrome, did not agree to the late "explantation of the cranial vault defect". An adequate way to prevent the "trepanned skull" syndrome in patients with post-traumatic cranial arch defects is timely plastic surgery of the cranial arch defect (cranioplasty) with bone cement "PALACOS-R". The optimal period of cranioplasty surgery preventing the development of trepanated skull syndrome is acute (the first 10 days after injury) and early recovery (up to 2 months after cranial trepanation) periods during post-traumatic cranial arch defect. This means that the most effective way to prevent trepanated skull syndrome is primary and primary delayed cranioplasty. Early cranioplasty with pathogenetic conservative treatment increases the effectiveness of treatment of the already developed trepanated skull syndrome and prevents the development of epilepsy.

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FEATURES OF SCABIES AND NEW APPROACHES TO ITS DIAGNOSIS AND TREATMENT IN THE REGION OF ANDIJAN

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Abstract:

The article presents a review of domestic and foreign medical literature, reflecting the current state of epidemiology, various clinical forms of scabies and the reasons for failures in its treatment.

Keywords: Scabies, Clinical Picture, Epidemiology, Treatment.

INTRODUCTION

Risk groups are of great practical importance in the epidemiology of scabies. The highest risk coefficient is represented by young people (17–21 years old), which is 9% of the entire population of Uzbekistan or from ¼ to ⅓ of the total incidence of scabies [1]. The relatively high incidence of scabies over the past two decades has created a certain problem for practical health care, which is due to a number of not only socio-economic, but also medical factors. Of the social factors, the most significant are the decline in living standards, changes in moral and ethical foundations in society among young people, migration and low culture of the population. Among the medical factors, an important role in the spread of infection belongs to errors in the diagnosis of the disease, incomplete involvement of sources of infection and contact persons in examination and treatment. Primary care healthcare workers (district therapists, pediatricians, general practitioners), as well as those from preschool institutions, boarding schools, nursing homes, etc., are poorly involved in detecting scabies. The unfavorable epidemiological situation with scabies is maintained by patients seeking medical care late. The average duration of one case of the disease from the moment the first clinical signs of the disease appear until the patient seeks medical attention is 10–13 days. Patients seeking medical attention late is most often associated with self-medication and diagnostic errors.

MATERIALS AND METHODS

Over the past two decades, there have been significant changes in the epidemiology and clinical picture of scabies: rashes on the hands and wrists are minimal, predominantly localized on closed areas of the body. This clinical variant of the typical form of the disease is most characteristic of medical and social workers, employees of the education and catering sectors, which is explained by frequent hand washing, often with the use of disinfectants and detergents. The course of the disease in these individuals is often protracted and persistent. The proportion of atypical forms of scabies has increased significantly: postscabies lymphoplasia, scabies of the "clean", Norwegian scabies, the clinical manifestations of which imitate a number of infectious and non-infectious dermatoses and often lead doctors to diagnostic errors [2]. In this regard, it seems necessary to increase the awareness of doctors of all specialties about the clinical manifestations of various forms of the disease for the purpose of timely diagnosis and implementation of therapeutic and anti-epidemic measures. In addition, it is necessary to dispel the stereotypical thinking of a doctor who believes that the main diagnostic symptom of scabies is "paired elements" representing the entrance and exit of the mite. When diagnosing scabies, doctors look not for scabies passages, which are the main symptom of the disease, but for "paired elements", which are numerous in any disease accompanied by itching. We conducted a retrospective analysis of 423 outpatient cards of primary care of patients with scabies (217 men, 206 women) aged 12 to 82 years. The typical form of the disease was observed in 319 patients (75.4%), scabies of the "clean" in 78 (18.4%), postscabies lymphoplasia in 13 (3.1%), complicated by allergic dermatitis with eczematization in 8 (1.9%), scabies without burrows in 5 (1.2%). It should be noted that scabies complicated by pyoderma was diagnosed in 14.9% of patients. In the practice of a dermatologist, the various clinical forms of scabies encountered can be classified and presented as follows:

- typical scabies;
- scabies of "incognito", "clean" or "cultured";
- scabies without burrows;
— postscabies lymphoplasia (nodular);
— urticarial scabies;
— Norwegian scabies;
— scabies associated with corticosteroid therapy;
— pseudosarcoptosis;
— scabies complicated by pyoderma;
— scabies complicated by allergic dermatitis;
— eczematized scabies;
— scabies in infants and young children.

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RESULTS AND DISCUSSION

Scabies of the "clean", or "incognito", ranks second in frequency among all forms of the disease, clinically characterized by scanty rashes on the skin in the form of small itchy vesicles and hemorrhagic crusts, located mainly in the abdomen, lower back and buttocks, as well as barely noticeable scabies passages. In some cases, the rash may be represented only by single bloody crusts or individual elements of post-scabies lymphoplasia of the same localization. The clinical picture of the disease corresponds to typical scabies with minimal severity of manifestations. Despite the minimal rashes on the skin, patients are bothered by moderate or severe itching. The latter circumstance significantly complicates diagnosis. This form of the disease occurs not only in individuals who frequently wash at home in the evening or due to the nature of their work (which facilitates the mechanical removal of a significant portion of the pathogen population from the patient's body), but also in patients who self-medicate with both antihistamines and sleeping pills, as well as glucocorticosteroid ointments and acaricidal agents [3]. Scabies "incognito" is most often observed in socially adapted and financially secure strata of the population in the age group from 30 to 40 years and is characterized by a duration of the disease from 3 weeks to 10 months, being in epidemiological terms a hidden reservoir for the emergence of numerous foci of infection [1].

Scabies without burrows is relatively rare and is diagnosed mainly during active examination of individuals who have been in contact with patients with scabies. The rash is characterized by single follicular papules located on the skin of the trunk and limbs, and individual non-inflammatory vesicles on the hands without scabies burrows. In this form of the disease, infection occurs not by fertilized female mites, but by larvae, which require 2 weeks to transform into adult females capable of making burrows and laying eggs. Post-scabies lymphoplasia (nodular scabies) occurs in almost half of patients and persists after full treatment from 2 weeks to 6 months. The pathogenesis of the disease is based on a special predisposition of the skin to respond to an irritant with reactive hyperplasia of lymphoid tissue in places of its greatest accumulation [4]. This form of scabies is clinically represented by intensely itchy lenticular papules and nodular rashes of a purple-blue color up to 1 cm in diameter, dense to the touch. Sometimes the elements are located close to each other, partially merging, forming dense plaques with scaling or crusts on the surface. Persistent nodules are reactive variants of scabies passages. The rashes are localized on the skin of the trunk (armpits, abdomen, buttocks), male genitals, female mammary glands and elbows. In children, similar nodular elements are found in the neck, auricles, and in boys - on the skin of the scrotum and penis. With reinvasion, postscabies lymphoplasia recurs in old places. Thus, according to V. I. Albanova, post-scabious lymphoplasia most often develops with improper treatment with acaricidal agents [9].

CONCLUSION

Thus, the conducted analysis of the literature and our own observations indicate a significant increase in recent years in the proportion of atypical and rare forms of scabies, the clinical manifestations of which imitate a number of other dermatoses and often lead doctors to diagnostic errors. In this regard, there is a need to inform doctors of all specialties about the features of the clinical manifestations of various forms of scabies for the purpose of timely clinical and laboratory diagnosis of the disease and the implementation of therapeutic and anti-epidemiological measures.

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CHRONIC RHINOSINUSITIS WITH NASAL POLYPS: PATHOGENESIS, DIAGNOSIS AND MODERN TREATMENT METHODS

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Abstract:

Chronic rhinosinusitis with nasal polyps (CRSwNP) is a common disease of the upper respiratory tract that significantly worsens the quality of life of patients. According to the World Health Organization, rhinosinusitis affects up to 30% of the population in developed countries, with CPRS occurring in 5-10% of these cases. Polypoid rhinosinusitis is observed in 20-30% of patients with chronic rhinosinusitis. CRSwNP is an important clinical entity diagnosed by the presence of both subjective and objective evidence of chronic sinonasal inflammation. Symptoms include anterior or posterior rhinorrhea, nasal congestion, hyposmia and/or facial pressure or pain that last for greater than 12 weeks duration. Nasal polyps are inflammatory lesions that project into the nasal airway, are typically bilateral, and originate from the ethmoid sinus. Males are more likely to be affected than females but no specific genetic or environmental factors have been strongly linked to the development of this disorder to date. CRSwNP is frequently associated with asthma and allergic rhinitis but the cellular and molecular mechanisms that contribute to the clinical symptoms are not fully understood. Defects in the sinonasal epithelial cell barrier, increased exposure to pathogenic and colonized bacteria, and dysregulation of the host immune system are all thought to play prominent roles in disease pathogenesis.

Keywords: Chronic rhinosinusitis with nasal polyps, Nasal polyp, Chronic rhinosinusitis

OBJECTIVE. To study the pathogenesis, diagnosis, and modern treatment methods of chronic rhinosinusitis with nasal polyps, as well as to assess their effectiveness.

MATERIALS AND METHODS. This review used data from scientific literature, including articles and clinical guidelines on chronic rhinosinusitis with nasal polyps. Clinical studies published in peer-reviewed journals were analyzed, with a focus on modern approaches to treatment and pathogenesis, as well as discussions of current issues. Literature searches were conducted in the Scopus and Web of Science databases over the past 10 years to ensure the relevance of the information.

DISCUSSION OF RESULTS. Chronic rhinosinusitis with nasal polyps (CRSwNP) is a complex disease whose pathogenesis involves multiple factors such as chronic inflammation, allergic reactions, and immune response disorders. According to recent studies, polyps develop as a result of prolonged inflammatory processes, which is confirmed by the identification of various cytokines and inflammatory mediators in the nasal tissues. Modern diagnostic methods, such as endoscopy and computed tomography, allow for a more accurate assessment of the nasal mucosa and detection of polyps. These methods play a key role in choosing appropriate therapy. Regarding treatment, a combined approach, including conservative methods (glucocorticosteroids, antibiotics) and surgical interventions (endoscopic sinus surgery), has shown high effectiveness. However, there are challenges related to disease recurrence, highlighting the need for further research into long-term therapeutic strategies and new treatment methods.

CONCLUSION. The pathogenesis of CRSwNP is associated with chronic inflammation and immune disorders, requiring an individualized approach to patients. Modern diagnostic methods, such as endoscopy and CT, contribute to effective treatment. Combined therapeutic strategies show good results, but

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recurrences remain a problem. Future research should focus on a deeper study of pathogenesis and the development of new treatment methods to improve the quality of life for patients.

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METHODS OF RADIOLOGICAL EXAMINATION OF CHEST DISEASES IN CHILDREN

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Abstract:

Chest symptoms are one of the most common reasons pediatric patients present for clinical evaluation. Imaging plays a critical role in elucidating differential considerations, provides valuable information in assessing the extent of disease and associated abnormalities, influences patient management decisions, and provides a detailed assessment of response to treatment. Given the wide range of pathologies that affect the pediatric chest, anatomic localization is a useful approach to classification and can be considered in a three-component model including primary lung parenchymal processes, large airway abnormalities, and pathology arising in the mediastinum. This practical approach can be applied to some of the most commonly encountered pediatric chest pathologies. This article also reviews the advantages and limitations of current imaging techniques and characteristic imaging findings of pediatric thoracic disorders encountered in daily clinical practice.

Keywords: chest radiography, pathology, computed tomography, bronchography, X-ray methods.

INTRODUCTION

The X-ray method is still the leading and main method in the diagnosis of diseases of the chest organs. Modern radiology has many methods for the effective recognition of the pathological process in the lungs and bronchi (X-ray, longitudinal tomography, bronchography, computed tomography, magnetic resonance imaging). With the help of these methods, it is possible to identify with high reliability not only changes in the lung parenchyma, pleura, vessels, bronchi, but also to characterize them from the morphological and functional side. Improvement of X-ray methods contribute to the diagnosis of lung diseases using a minimal, but sufficient set of X-ray studies [1]

The anatomical and physiological features of the respiratory system in newborns are structural and functional immaturity and rapid exhaustion of adaptive reactions. In the structure of morbidity, respiratory disorders in newborns occupy 2nd place - 8.8% [1]. The leading causes of respiratory failure (RF) in newborns are:

1. Pathology of the airways (malformations with airway obstruction: atresia, choanal hypoplasia, malformations of the jaws, laryngeal membranes, tracheobronchomalacia, cysts of the tongue, gums, neck; acquired diseases: edema of the nasal mucosa of various origins, paralysis of the vocal cords, aspiration);
2. Non-infectious pathology of the lungs (RDS, malformations, neonatal aspiration syndrome, atelectasis, pulmonary hemorrhage, pulmonary edema);
3. Infectious and inflammatory processes in the lung tissue (pneumonia, pleuropulmonary diseases);
4. Pathology of the pulmonary vessels (congenital malformations of the cardiovascular system, transient or persistent pulmonary hypertension);
5. Extrapulmonary pathology (damage to the brain and spinal cord, congenital malformations of the central nervous system, heart, diaphragm, gastrointestinal tract, mediastinal tumors, thymus pathology).

Advantages and Disadvantages of Imaging Techniques

The three most commonly used imaging techniques for the evaluation of pediatric thoracic diseases are chest radiography, magnetic resonance imaging (MRI), and computed tomography (CT). Their advantages and disadvantages are summarized in the following section.

A chest X-ray can reveal:

- the presence of inflammation in the lungs, including those characteristics of diseases such as pneumonia and tuberculosis;
- the presence of tumors and edema, which may be a consequence of heart failure;

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- the presence of pathological accumulations of gases and liquids;
- fluid accumulation in the pericardium, an increase in the size of the heart, aorta and lymph nodes;
- foreign objects in the lungs, esophagus and respiratory tract.

Chest X-ray is prescribed for diagnostic purposes and to assess the condition of diseases such as:

- Pneumonia. In complex cases, chest X-ray data are the basis for diagnosing acute pneumonia;
- Tuberculosis;
- Inflammatory diseases of the pleura (pleurisy, pleural empyema);
- Tumor diseases of the lungs, bronchi, trachea;
- Pulmonary embolism;
- Occupational lung diseases caused by prolonged inhalation of dust and other small particles;
- Pneumothorax (mechanical rupture of lung tissue);
- Parasitic diseases of the chest (echinococcosis);
- Diseases of the thoracic spine.

Chest Radiography

Chest radiography is the first and most commonly performed imaging technique in children with potential thoracic diseases. It is also often the only imaging study required for diagnosis. For chest pathologies that cannot be fully characterized by chest radiography alone, such as mediastinal or airway lesions, it is often sufficient to appropriately tailor subsequent imaging techniques. Given that chest radiography requires ionizing radiation, its use must be balanced against the potential risk factor for radiation-induced malignancies. This is heightened in children due to their increased susceptibility to ionizing radiation exposure as well as their longer-term potential for re-exposure compared to adults. By implementing the ALARA principle, which states that radiation levels are kept as low as reasonably achievable (ALARA), diagnostic chest radiography can be performed with a very low radiation dose [1, 2]. This therefore results in a very low risk of developing radiation-induced malignancies. In addition, chest radiography offers the advantages of ease of acquisition, low cost, and availability.

Computed Tomography

CT is the most common cross-sectional modality used to evaluate lung parenchymal abnormalities. This is due to its excellent anatomical resolution and high contrast between lung pathology and adjacent air-filled lung parenchyma, a difference that can be further enhanced with the use of intravenous contrast. Compared with chest radiography, CT provides superior characterization of abnormalities and aids in pre-procedural evaluation by providing excellent relational anatomy. Specialised CT techniques such as high-resolution imaging, inspiratory and expiratory sequences and 3D/4D volume reconstruction can be used to answer specific clinical questions [3]. The rapid acquisition times provided by the multidetector CT (MDCT) scanners currently in use have additional benefits, particularly in pediatrics, as they can reduce the need for sedation. Although the benefits of CT are numerous, the most glaring disadvantage is the added ionising radiation compared to radiography and thus the risk/benefit ratio must be carefully weighed. To reduce the dose, individualised acquisition parameters that take into account the patient's body size and image optimisation techniques such as iterative reconstruction according to the ALARA principle should be used [4].

Magnetic resonance imaging

MRI provides superior soft tissue contrast compared to CT. It is therefore an ideal modality for characterizing extraparenchymal soft tissue lesions such as mediastinal or chest wall soft tissue lesions. The absence of ionizing radiation compared to CT provides additional advantages, particularly in susceptible children. The use of MRI to evaluate the lung parenchyma is hampered by the intrinsic paucity of photons in the air-filled alveoli, resulting in a low magnitude of MRI signal generation [5]. This generated signal is further degraded by the susceptibility artifact that arises from the multiple air-tissue interfaces in the lung. The reduced specific resolution of MRI compared to CT further limits its use for evaluating subtle pathological changes in the lung parenchyma [6]. Thus, MRI has limited utility in evaluating lung parenchymal pathologies that result in increased air, so-called negative pathologies, such as cystic lung disease or emphysema. However, the recent development of improved MRI sequences has increased the use of MRI for the evaluation of so-called plus pathologies that result in the deposition of material in the lung parenchyma [7, 8]. Because of this additive process, more photons are present in the lung parenchyma, thereby increasing the magnitude of the MRI signal generated. Disadvantages of MRI include availability and cost. In addition, due to the long acquisition times, sedation is usually required since patient motion, in addition to the respiratory and cardiac motion inherent in chest imaging, can significantly degrade image quality and interfere with image interpretation.

CONCLUSION

Thus, X-ray examination plays a significant role in the diagnosis of acute inflammatory lung diseases.

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Traditional methods of X-ray examination remain the leading ones. Computer tomography in acute inflammatory diseases in children has limited application, in particular in cases of X-ray negative, but clinically obvious manifestations of the disease, when it is necessary to conduct a control examination of patients with a torpid, poorly amenable to therapy course of the inflammatory process.

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STUDY OF QUALITY OF LIFE AS A CRITERION FOR THE EFFECTIVENESS OF TREATMENT OF DERMATOVENEREOLOGICAL PATIENTS IN A HOSPITAL SETTING

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Abstract:

The article presents data on the quality of life of dermatovenereological patients before and after the course of treatment. The issues of the possibilities of using the international quality of life questionnaire MOS-SF-36 for assessing the criteria for the quality of inpatient care for dermatovenereological patients, as one of the important indicators of quality management of hospital care for this category of patients, are considered, the effect of treatment of patients with skin diseases in inpatient settings on improving their quality of life is shown.

Keywords: effectiveness of treatment in hospital conditions, quality of life of dermatovenereological patients, assessment of the quality of inpatient care.

INTRODUCTION

In recent years, the study of quality of life has become a subject of clinical interest and scientific research [1], since improving the patient's quality of life is one of the important tasks in the treatment of skin diseases. If there is no improvement in the quality of life of patients after treatment, especially in a hospital setting, this indicates the low effectiveness of the treatment and preventive measures taken during the treatment of the patient.

Currently, the study of the patient's quality of life is an important, and in some cases the main criterion determining the effectiveness of treatment in clinical trials. Assessment of the quality of life allows us to characterize the effectiveness of diagnostics, treatment, rehabilitation, the effectiveness of health care activities, and also to determine the effectiveness of numerous reforms and programs aimed at increasing the level of well-being and improving the quality of life of the population, including priority national projects implemented in our country [1-5]. In the context of modernization of the health care system, issues of assessing the quality of hospital care are a complex task. Taking this into account, the development of the most effective forms and methods for assessing the quality of hospital care continues [6, 7].

MATERIALS AND METHODS

The aim of the study was to investigate the quality of life as a criterion for the effectiveness of treatment of dermatovenereological patients undergoing inpatient treatment. To assess the effectiveness of patient treatment in a hospital setting, the international quality of life questionnaire MOS-SF-36 was used - 161 patients aged 18 to 75 years were surveyed before and after treatment. A significant percentage of those surveyed were patients in the age groups from 30 to 39 years (23.6%) and from 50 to 59 years (21.1%). The widespread nature of the course of skin diseases in men was recorded 1.9 times more often than in women (65.2 and 34.8%, respectively). Almost half of the patients with chronic dermatoses (83 people), whose average age was 42.8 ± 0.8 years, had a high neuropsychic load at work; dissatisfied with work - 34.9% of patients, 28.9% of patients had an unorganized daily routine, 27.7% of patients did not follow the diet, 51.8% of patients had an unfavorable microclimate at work. According to the conducted study, upon admission to hospital for treatment, dermatovenereological patients in quality of life categories had an average score of 49.8 ± 2.457, at the time of discharge - 77.7 ± 1.539 points ($P < 0.001$).

RESULTS AND DISCUSSION

In the total measurement of psychological health (MCS), the indicators upon admission to the hospital were 46.4±7.039 points, upon discharge - 79.1±1.513 points. The indicators of physical functioning (PF) in patients before receiving the course of treatment were 54.7±2.037 points, after receiving the course of treatment - 81.2±1.759 points ($P<0.001$). An increase in role physical functioning (PF) was also found - 48.7±2.125 points, against 77.1±1.805 points. The average quality of life scores according to the general health scale (GH) also had significant differences

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before and after treatment (45.7±2.073 and 74.9±1.738 points, respectively, P<0.001).

Significant differences were found in the vitality (VT) scores in patients before treatment and after discharge from the hospital — 47.9±2.087 and 79.5±1.801 points, respectively. There was a significant difference in the average social functioning (SF) scores: 53.2±2.157 versus 78.3±1.960 points, respectively.

Role emotional functioning (RE) also increased from 49.3±2.017 to 73.9±1.579 points (P<0.001). The value of the state of psychological health (MN) of the observed patients before and after in-patient treatment was 46.4±7.039 points, versus 79.1±1.513 points (P<0.001). Therefore, after the treatment of patients in the dermatovenereological hospital for 15-21 days, psychological health (RE) increased by 33.0 points, emotional functioning (RRE) - 24.6 points, social functioning (SF) - 25.1 points, vitality (VT) increased by 31.6 points, the general health indicator (GH) increased by 29.2 points, role functioning (RP) - 28.4 points, physical functioning (PF) increased by 26. points, pain (P) decreased during the treatment period by 35.2 points.

Patient-centred factors

Patient-centred factors that affect adherence include socioeconomic status (SES) and patient demographics such as age, gender and level of education. Treatment adherence declines in the presence of barriers associated with lower SES. In a survey of 1121 dermatology patients, the most frequently mentioned barrier to care was financial and insurance issues (42.9%), while the second most frequent barrier to adherence was high treatment costs (24.0%). Correspondingly, the Medicare-insured demographic and patients with an income range between $15,000 and $29,999 had higher odds of care avoidance and nonadherence.26 Among 156 psoriasis patients, those with lower SES had an increased tendency to experience episodes of non-adherence to conventional systemics (46.7% vs. 25%). Furthermore, patients living in poorer neighbourhoods had higher rates of primary drug failure when treated with biologics (34.7% vs. 18.4%, p = 0.039) and were more likely to have greater than one documented instance of biologic treatment non-adherence.

Closely related to SES, a higher degree of education is associated with increased adherence. The adjusted odds ratios for patient adherence to dermatologic treatments amongst individuals with a high school diploma or equivalent, associate degree and bachelor's degree are 0.53, 0.50 and 0.43, respectively. This pattern likely exists due to high levels of social support and health literacy that are associated with an advanced level of education. Providing patients with educational materials tailored to their personal comprehension levels, ideally with supplemental illustrations, may help increase adherence.

CONCLUSION

Thus, the assessment of the quality of life of patients before and after treatment in a hospital setting is an important indicator of the management of the effectiveness of hospital care for dermatovenereological patients and allows monitoring the quality of life of patients who received treatment in a hospital setting, and therefore, to assess the quality of hospital care. The results of the study also showed that the assessment of the quality of life of dermatovenereological patients who received treatment in a hospital setting is an indicative criterion for the effectiveness of the Republican Clinical Skin and Venereal Dermatovenereological Dispensary in a large city, in the final assessment of dermatovenereologists.

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PRACTICAL RECOMMENDATIONS FOR DRUG TREATMENT OF DERMATOLOGICAL REACTIONS IN PATIENTS RECEIVING ANTITUMOR DRUG THERAPY

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Abstract:

Various dermatological reactions may develop during drug therapy of tumors. Skin toxicity may be accompanied by symptoms such as pain, causing additional suffering to patients; when localized on open areas of the skin, it is perceived by many as an unsightly appearance, which significantly worsens their quality of life. Dermatological reactions are caused by many targeted drugs. Most often, dermatological reactions are caused by epidermal growth factor receptor (EGFR) inhibitors, this is a class effect of all such drugs associated with the inhibition of EGFR physiological signals in the skin. Also, skin toxicity can be caused by a number of antitumor chemotherapy drugs. Alopecia is typical for most cytostatic drugs.

Keywords: maintenance therapy, chemotherapy, targeted therapy, acne-like rash, pruritus, dry skin, cracked skin, paronychia, palmar-plantar syndrome, LPS, EGFR

INTRODUCTION

Acne-like rash is the most common adverse event with the use of EGFR inhibitors. For cetuximab and erlotinib, a direct correlation was found between the severity of the process and overall survival of patients. Acne-like rash develops first when prescribing EGFR inhibitors, often accompanied by itching and pain. Usually, after 2-4 months of therapy with an EGFR inhibitor, the intensity of the rash decreases. Acne-like rashes are represented by papular elements (non-cavity skin formations, elevated above the surface of the skin, less than 5 mm in diameter) and pustules (cavity skin formations, elevated above the surface of the skin, the cavity of which contains pus). Acne-like rash usually appears on the skin of the middle third of the face, scalp, upper chest and back. When EGFR inhibitor therapy is stopped, the rash resolves completely within 4 to 6 weeks without leaving scars [1].

MATERIALS AND METHODS

The NCI-CTCAE classification is used to determine the severity of acneiform rash (Table 1). Different EGFR inhibitors are characterized by different intensities of rash.

Table 1. NCI-CTCAE V. 4.03 acneiform rash severity grades

Degree 1	Degree 2	Degree 3	Degree 4
Papules and/or pustules, body involvement < 10%; with or without pruritus or tenderness	Papules and/or pustules; 10–30% of body involvement; with or without pruritus or soreness; negative psychological effects; activity limitation	Papules and/or pustules; >30% body involvement; with or without pruritus or tenderness; limited self-care; local superinfection possible	Papules and/or pustules; any body area affected; associated with widespread superinfection requiring IV antibiotic therapy; life-threatening consequences

RESULTS AND DISCUSSION

The first symptom, appearing in the first 2-3 weeks of therapy, is an acne-like papulopustular rash, often accompanied by itching and burning, less often by pain, hyperemia and swelling. Later (after 2-4 months of therapy) the intensity of the rash usually decreases and the leading symptoms become paronychia, cracks in the skin, xerosis (dryness) of the skin and associated skin itching.

A patient information leaflet is available on the rosoncoweb.ru website in the "Library" section [2].

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• All patients receiving EGFR inhibitor therapy are advised to use sunscreens and hats, and limit sun exposure, as sunlight may exacerbate any potential skin reactions.
• Patients should apply moisturizers and sunscreens (with sun protection filter: SPF> 20 (protection from UVB radiation) and PPD> 1 / 3 SPF (protection from UVA radiation) to exposed areas of the skin (face, arms, legs, neck, back and chest) every morning [3].
• During treatment, it is necessary to avoid injuries, contact with aggressive reagents (soap, detergents and cleaning agents, etc.).
• If possible, avoid makeup and trimmed manicure.
• Shaving is not contraindicated, electric razors are not recommended.
• It is recommended to wear loose and comfortable clothes and shoes, use cotton underwear.
• It is recommended to limit water procedures.
• Preventive drug therapy begins the day before or on the day of administration / administration of the drug.
If grade 1–2 rash develops during EGFR inhibitor therapy with adequate prophylaxis, EGFR inhibitor therapy should be continued, topical hydrocortisone should be discontinued, moisturizers and sunscreens should be continued (Table 4), and topical antibacterial therapy should be prescribed (Table 5). In case of severe facial swelling and itching, a combination drug containing a corticosteroid and an antibacterial component, pimecrolimus or tacrolimus, should be prescribed twice daily. If grade 3–4 rash develops, EGFR inhibitor therapy should be discontinued until grade 1–2 rash subsides. Consultation with a dermatologist is recommended. Continue prophylactic therapy for acne-like rash (Table 4) and prescribe therapy with a topical antibacterial agent and doxycycline if the patient has not received it before (200 mg for the first day, then 100 mg twice a day, Table 5). Dose reduction of EGFR inhibitors when resuming therapy should be carried out according to the instructions for each drug. In some cases, it is possible not to interrupt therapy with an EGFR inhibitor for grade 3 rash (more than 30% of the body surface), if it is not accompanied by a significant decrease in quality of life [4].
If the patient develops furuncles or carbuncles against the background of acne-like rash, the following is recommended:
• Consultation with a surgeon.
• Systemic antibiotic therapy (Table 5) (reserve drugs: cephalosporins, fluoroquinolones).
• Antibiotic ointment (Table 5).
• Salt compresses: 100 g of rock or sea salt per 1 liter of water at room temperature or body temperature. Duration 15 minutes, 2-3 compresses 3 times a day, for several days. Do not cover with cellophane or low-permeability fabric. Re-apply the antibiotic ointment after each compress.
• If superinfection occurs, it is recommended to conduct a bacteriological examination and systemic antibiotic therapy based on the results of the bacteriological examination.
• If superinfection occurs, it is recommended to conduct a bacteriological examination and systemic antibiotic therapy based on the results of the bacteriological examination. When skin cracks develop, it is recommended to:
• Antiseptics.
• To treat infected cracks, use an antibiotic ointment or panthenol 5%, 9%.
Treatment of paronychia
• Local therapy: chlorhexidine, erythromycin ointment, hydrocortisone cream + neomycin + natamycin for daily use.
• Systemic therapy: doxycycline.
• Nonsteroidal anti-inflammatory drugs can be used as symptomatic therapy.
• In case of suppuration, severe symptoms, consultation with a surgeon is recommended.
• In case of superinfection, bacteriological examination and systemic antibiotic therapy are recommended based on the results of bacteriological examination.

CONCLUSION

Given the significant fear of patients about alopecia, the lack of prevention and therapy, patients should be informed about alopecia, the reversibility of alopecia, and psychologically prepared for hair loss. It is advisable to give the patient advice on wearing a wig and headwear before hair loss. Patient communities can play a positive role.

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IMPROVEMENT OF THE RADIATION DIAGNOSIS OF ASEPTIC NECROSIS OF THE FEMORAL HEAD IN PERSONS WITH POSTCOVID SYNDROME

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Abstract:

Osteonecrosis is a severe disabling disease that often develops in people of young working age (the average age is 33-45 years) and is associated with the death of bone cells in a certain area of bone tissue, usually provoked by a violation of local blood supply. IT most often develops in the head of the femur, the condyles of the femur and tibia are indicated in second place in terms of the frequency of lesion, the head of the humerus, talus, etc. It is customary to distinguish idiopathic (primary) and secondary IT. The latter is associated with specific causal factors and is more common than the primary one. Risk factors for the development of secondary ON of the femoral head are, for example, considered to be: traumatic damage to the hip joint, surgical interventions on it, hip dysplasia, immuno-inflammatory rheumatic diseases, various coagulopathies, hyperlipidemia, genetic abnormalities, chronic liver diseases, treatment with glucocorticoids (HA), radiation and polychemotherapy, alcohol abuse and a number of others.

Keywords: aseptic bone necrosis, osteonecrosis, coronavirus infection.

RELEVANCE. The hip joint in the structure of the incidence of osteoarthritis occupies a leading position in terms of the severity of dysfunction of the system of organs of support and movement (Lane N.E., 2007; Manaster V.J., 2010). Coxarthrosis leads to significant functional limitations, joint pain, which significantly reduces the ability to work, worsens the quality of life of patients, and also contributes to the rapid development of pathological changes in other joints (Drachevsky V.A. et al., 2000; Bierma-Zeinstra S.M. et al., 2007; Jacobsen S., 2006). According to the World Health Organization, osteoarthritis is diagnosed in 4% of the world's population, and in 10% of them it is the cause of disability. In the last five years, the incidence of the musculoskeletal system in Russia has increased from 10.9 to 16.9% (Khominets V.V. et al., 2014). At the same time, the incidence of coxarthrosis is about 9.5% of the total number of patients (Tikhilov P.M. et al., 2008; Bierma-Zeinstra S.M. et al., 2007). Untimely treatment of hip arthrosis in 25-30% of patients leads to persistent contractures, and in 10-12% it requires highly traumatic surgical treatment, hip replacement (Tikhilov P.M. et al., 2008; Altman R.D., 2005). In 30-80% of cases, the cause of arthrosis is the congenital inferiority of the elements of the hip joint (Machotka Z., 2009). In almost half of all cases, the cause of coxarthrosis remains unexplained. Early detection of pathomechanism factors for the development of degenerative and dystrophic changes in the joint, adequate and timely surgical restoration of disturbed relationships in the joint can significantly slow down the development of signs of arthrosis and maintain the patient's quality of life at a high level for longer (Akhtyamov I.F., 2008).

THE PURPOSE OF THE WORK. Improving the diagnosis of MRI and improving the effectiveness of early diagnosis in diseases of the groin joint.

MATERIALS AND METHODS OF RESEARCH. 198 patients with hip pain syndrome who underwent a stationary examination and were treated at the orthopedic-traumotology Hospital of the Andijan region were sorted out. Of these, 112 people were included in the main group (66 women; 58.9% and 46 men; 41.1%; average age: 50.1±11.1 years). Criteria for inclusion of patients in the main group: the presence of clinical signs of coxarthrosis; identification of pathological changes in bone, cartilage and soft tissue structures of the joint, characteristic of the course of coxarthrosis at various stages of the disease. The criteria for excluding patients from the main group were: traumatic joint changes; pathological conditions and diseases of the lumbar spine and pelvic joints;

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pathological conditions and diseases of the hip and pelvic region (damage to the thigh muscles, inguinal hernia, inflammatory diseases of the pelvic organs, etc.); systemic diseases associated with a high risk of developing aseptic necrosis of the femoral head; age over 65 years, due to the high proportion of age-related degenerative-dystrophic changes in joints in these patients. The control group consisted of 86 people (52 women; 60.5% and 34 men; 39.5%; the average age was 51.3±5.8 years). The criteria for selecting patients in the control group were: hip pain syndrome caused by various pathological conditions other than coxarthrosis. Radiation studies were conducted at the Department of Radiology and Radiology with the course of ultrasound diagnostics of the Military Medical Academy named after S.M. Kirov of the Ministry of Defense of the Russian Federation in the period from 2010 to 2014. All patients of the main and control groups (n=198) underwent MRI of the hip joints and lumbosacral spine. According to the doctor's prescription, 20 patients of the main group (17.9%) underwent CT, 47 people (42.0%) of the main group and 12 patients (14.0%) of the control group underwent radiography.

THE RESULTS OF THE STUDY. Patients with significant differences in the values of SDU (> 7°), Viberg angle (> 10°), AI (> 6°) on different limbs were evaluated separately. The smaller difference between these indicators was designated as symmetrical values. Joints with a combination of normal and "pathological" values of alpha angle, Sharp angle, femoral head extrusion index and acetabulum index were separately isolated. In the control group, only the difference in the values of the alpha angle was determined in 3 patients (3.5%). In the joints of the patients of the main group, asymmetric values of SDU were noted - in 17 patients (15.2%); Viberg angle - in 14 (12.5%); AI - in 10 (8.9%); alpha angle - in 19 (17.0%), Sharp angle - in 9 (8.0%), femoral head extrusion index - in 12 (10.7%); acetabulum index - in 11 patients (9.8%). In the control group, the asymmetric values of the alpha angle were determined in three people (3.5%). There were no differences in the values of the angles of the acetabulum version > 7° (asymmetric values) in the joints of patients of the main and control groups. When evaluating symmetrical values in patients in the main group, "borderline" and "pathological" SDU indicators were determined significantly more often than in the control group (p< 124°; alpha angle > 55°; combination of parameters - alpha angle > 55° and 11 small SDU values (< 128°). Such changes were detected in 61 joints (27.2%) of patients in the main group. In the control group, signs of such deformities were detected in 10 joints (5.8%). Valgus deformity of the hip (SD > 136°) or a tendency to it (SD 133°-135°) was determined in 74 joints (33.0%) of patients in the main group. In the control group, such deformity was found in 17 joints (9.9%). The increase in the depth of the acetabulum was characterized by an increase in the angle of vibration > 40°, negative values of AI. Such changes were visualized in 51 joints (22.8%) of patients in the main group and in 13 joints (7.6%) of the examined control group. A decrease in the depth of the acetabulum was characterized by a decrease in the Viberg angle < 20° and/or an increase in the Sharpe angle >45°, a decrease in the acetabulum index < 250, and an increase in the acetabular index > 11°. Such changes were noted in 54 joints (24.1%) of patients in the main group and only in 21 joints (12.2%) of the examined control group. Patients with significant differences in the values of SDU (> 7°), Viberg angle (> 10°), AI (> 6°) on different limbs were evaluated separately. The smaller difference between these indicators was designated as symmetrical values. Joints with a combination of normal and "pathological" values of alpha angle, Sharp angle, femoral head extrusion index and acetabulum index were separately isolated. In the control group, only the difference in the values of the alpha angle was determined in 3 patients (3.5%). In the joints of the patients of the main group, asymmetric values of SDU were noted in 17 patients (15.2%); Viberg angle - in 14 (12.5%); AI - in 10 (8.9%); alpha angle - in 19 (17.0%), Sharp angle - in 9 (8.0%), femoral head extrusion index - in 12 (10.7%); acetabulum index - in 11 patients (9.8%). In the control group, the asymmetric values of the alpha angle were determined in three people (3.5%). There were no differences in the values of the angles of the acetabulum version > 7° (asymmetric values) in the joints of patients of the main and control groups. Symmetrical "pathological" values of the alpha angle (55°-68°) were measured in 15 people (16.1%) of the main group of 93 with symmetrical angle values and in 8 (9.6%) of the 83 surveyed control group. In the main group, symmetrical "pathological" Sharpe angle values were determined in 12 joints out of 206 (5.8%); femoral head extrusion index - in 14 out of 200 (7.0%); acetabulum index - in 16 joints out of 202 (7.9%). No "pathological" values of these parameters were detected in patients of the control group.

CONCLUSION. As a result of scientific work, the possibilities of MRI in the diagnosis of hip joint pathology and assessment of its morphometric parameters were determined. The possibilities of MRI in a full assessment of all joint structures, prognosis of

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further development of pathological changes in it based on morphometry results were shown, which can be of great importance in planning the treatment of patients with hip pain syndrome. The optimal method of MR examination of the hip joint is justified in identifying various pathological changes in bone, cartilage and soft tissue structures in it, determining the disturbed relationships and features of the configuration of the hip and acetabulum. In order to improve the quality of MR imaging of hip joint structures, the main technical parameters and scanning frequencies were optimized, which varied depending on the detected pathology. The technique of MR morphometry of the hip joint has been developed and its use in routine MR examinations of the hip joint has been justified. The semiotics of damage to the bone and soft tissue structures of the hip joint in patients with coxarthrosis has been clarified and systematized. Patterns of combinations of signs of coxarthrosis have been revealed. Pathological changes in the articular cartilage of the femoral head and acetabulum were the earliest and most common sign of arthrosis. Based on the strong correlation between the severity of chondromalacia and the degree of coxarthrosis in general, it can be judged that chondromalacia may be a sign that determines the severity of osteoarthritis of the hip joint as a whole. Edema of the bone marrow and cyst-like restructuring of the supporting segment of the femoral head, marginal osteophytes are closely related to the degree of chondromalacia. Damage to the articular lip, its hypertrophy and paralabral cysts form a single set of signs, most often detected with pronounced pathological changes in the articular lip. The results of the scientific work carried out determined that MRI allows to identify and fully characterize the initial signs of degenerative-dystrophic changes in bone, cartilage and soft tissue structures of the joint, as well as to establish the configuration and structure of the femur and acetabulum, which determine the likelihood of further development of these changes. The predominance of "borderline" and "pathological" values of SDU, AI, angles of the acetabulum version, femoral head extrusion index, acetabulum index, Sharpe angle, alpha angle, femoroacetabular interval and ratio in joints with moderate (10-18 HOAMS points) and pronounced (19-27 HOAMS points) manifestations of coxarthrosis (p< 124°. The values of the acetabular index >11° were more often determined. The significant predominance of "pathological" and "borderline" values of the Viberg angle was determined only with "moderate" manifestations of coxarthrosis (p< 20°.

CONCLUSIONS 1. The results of magnetic resonance imaging make it possible to identify and fully characterize all the signs of coxarthrosis. The primary and main manifestation of coxarthrosis is chondromalacia, which develops in all patients. The lesion of articular cartilage is naturally and reliably closely interrelated (g=0.72-0.77; p<0.05). with edema of the bone marrow of the adjacent segment of the femoral head, marginal osteophytes, as well as with the severity of other signs of hip arthrosis (1=0.86; p<0.05).

2. The magnetic resonance imaging data make it possible to make all the necessary measurements of the morphometric parameters of the hip joint with high accuracy. The main pathological variants of the joint structure are valgus, varus deformities of the hip, deep and shallow acetabulum. Varus deformity of the hip, deep acetabulum, as well as their combination can cause the development of hip impingement syndrome.

3. In young patients with severe coxarthrosis, "borderline" and "pathological" values of certain morphometric parameters are significantly more common. The values of the cervical-diaphyseal angle greater than 133°, the acetabular index greater than 8°, and the alpha angle greater than 55° determine a higher probability of developing coxarthrosis in young patients.

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QUANTITATIVE ASSESSMENT OF LIFESTYLE FACTORS IN YOUNG ADULTS WITH MASLD IN UZBEKISTAN (EATING BEHAVIOR, SMOKING, PHYSICAL ACTIVITY, CHRONIC STRESS, SLEEP QUALITY)

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Abstract:

The prevalence of metabolic-associated steatotic liver disease (MASLD) is increasing globally, including in Uzbekistan. Lifestyle factors such as eating behavior, smoking, physical activity, chronic stress, and sleep quality play a crucial role in the development and progression of MASLD in young adults. This study aims to quantitatively assess these factors in young adults diagnosed with MASLD in Uzbekistan. By examining these variables, the research seeks to identify high-risk behaviors and potential interventions to improve outcomes for this population.

Keywords: *MASLD, eating behavior, smoking, physical activity, chronic stress, sleep quality, Uzbekistan, young adults.*

INTRODUCTION

Metabolic-associated steatotic liver disease (MASLD), formerly known as non-alcoholic fatty liver disease (NAFLD), is a significant global health issue, especially in developing countries like Uzbekistan. It is closely linked with lifestyle factors, including poor eating habits, smoking, lack of physical activity, chronic stress, and sleep disturbances. These factors contribute not only to the onset of MASLD but also to its progression, making it crucial to understand their quantitative impact. Young adults are particularly vulnerable as they undergo significant lifestyle transitions. Addressing these risks is essential to developing effective public health strategies in Uzbekistan.

PURPOSE OF THE STUDY

The purpose of this study is to quantitatively assess lifestyle factors, including eating behavior, smoking, physical activity, chronic stress, and sleep quality, among young adults diagnosed with MASLD in Uzbekistan. Through this analysis, the study aims to identify critical lifestyle patterns that contribute to the development and progression of MASLD in this population.

MATERIAL AND METHOD

STUDY DESIGN:

This is a cross-sectional study conducted in major hospitals and healthcare centers in Uzbekistan specializing in liver diseases. The study involved young adults aged 18-35 diagnosed with MASLD.

PARTICIPANTS:

A total of 150 participants diagnosed with MASLD were included in the study. Participants were selected based on specific criteria, including a confirmed diagnosis of MASLD through clinical and imaging techniques**.**

DATA COLLECTION

Participants were surveyed regarding their eating behavior, smoking status, physical activity levels, chronic stress, and sleep quality. Eating behavior was assessed using a validated questionnaire focused on dietary habits. Smoking status was classified as smoker, non-smoker, or former smoker. Physical activity was evaluated using the International Physical Activity Questionnaire (IPAQ). Chronic stress was measured using the Perceived Stress Scale (PSS), and sleep quality was assessed using the Pittsburgh Sleep Quality Index (PSQI).

STATISTICAL ANALYSIS:

The data were analyzed using descriptive and inferential statistics. Associations between lifestyle factors and MASLD severity were determined using regression analysis, with a significance level set at $p < 0.05$.

RESULTS OF THE STUDY

The analysis revealed that unhealthy eating behaviors, including high consumption of fats and sugars, were significantly associated with more severe MASLD cases. Smoking was prevalent among 40% of the participants, with smokers showing higher liver fat content than non-smokers. Low physical activity was reported in 60% of the participants, and these individuals were more likely to exhibit advanced stages of MASLD. Chronic stress, as measured by PSS, was high in 70% of participants and

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was linked with greater liver damage. Poor sleep quality, reported by 55% of participants, was also associated with increased MASLD severity.

CONCLUSIONS

This study highlights the significant role of lifestyle factors in the progression of MASLD in young adults in Uzbekistan. Unhealthy eating behaviors, smoking, low physical activity, chronic stress, and poor sleep quality are all linked with more severe MASLD outcomes. Addressing these factors through public health interventions, lifestyle modification programs, and individual counseling may help reduce the burden of MASLD in this population.

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ADAPTATION OF THE BODY TO PREGNANCY

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Abstract:

The problem of complicated pregnancy, childbirth and the postpartum period is the essence of obstetric science. The study of this problem should be based on understanding the physiology of the uncomplicated course of the gestation process, on the one hand, and an approach to this problem from the standpoint of the whole organism, on the other. Pregnancy is one of the forms of life activity, and life is one of the natural phenomena. All natural phenomena are subject to the law, according to which they go through a certain cycle in their development: conception - development - formation. The last stage of this cycle is death, after which the natural phenomenon ceases to exist, merging with the environment. This law is also true for the phenomena of living nature. Life is a constant struggle with death, which is achieved by the continuous synthesis of information-rich macromolecules, the formation of cells with their complex organization, the formation of tissues and organs. The most important role in this process is given to the synthesis of protein as a substance of the most complex structure. It is proteins that play a primary role in the structure and function of the cell, being the molecular tools with the help of which genetic information is realized. In this paper, when we talk about hypertensive disorders, we mean "obstetric" hypertensive disorders, i.e. any obstetric complications.

Keywords: body, hypertension, insulin, pregnancy, pregravid preparation

INTRODUCTION. The biological meaning of pregnancy is the creation of new life. It is clear from this that when solving the problem of pregnancy, an approach is needed from the position of the distinctive feature of life: the synthesis of substances, or more precisely, from the position of metabolism.

Metabolism in the body does not occur randomly, but in strict accordance with its needs and the influence of the environment, which is the basis of adaptation. Adaptive restructuring of metabolism occurs under the influence of changes in the systems that regulate it. These include the endocrine, immune, nervous systems, the genetic, receptor, enzymatic apparatus of the cell, biologically active substances, metabolites, ions, etc. The coordinating role belongs to the integrative systems of the body: the cerebral cortex and the limbic-reticular complex, the most important component of which is the hypothalamus.

It is obvious from this that considering the problem of pregnancy from the point of view of metabolic regulation is an approach to this problem from the position of the whole organism.

Metabolism is based on biochemical reactions that occur with the use and transformation of energy. Glucose, free fatty acids, amino acids and ketone bodies can be used as energy substrates in humans.

The proportion of the energy substrates used varies in different states of the body. At rest, the main substrate is the most easily utilized glucose. When the body's ability to absorb glucose deteriorates, for example, with insulin deficiency or with a decrease in glucose reserves (in the case of a decrease in glycogen in the liver), fatty acids acquire a greater role as an energy substrate. Along with the utilization of fatty acids, the consumption of ketone bodies increases. Their role as an alternative energy substrate increases as the use of fatty acids slows down. In critical situations, amino acids, which can be converted into glucose, are used to provide energy to the body.

The most important role in the regulation of metabolism belongs to the endocrine system. All other regulatory systems and substances take both independent and indirect (through regulation of the endocrine system) part in this process, synthesizing ATP used in various cellular functions. Thus, the state of metabolism reflects the state of all systems, tissues and organs of the whole organism and, conversely, the functions of organs and systems are in exact accordance with the state of metabolism.

Insulin is the main hormone in the regulation of metabolism. Its importance is determined in the utilization of proteins, fats, carbohydrates, minerals and energy substrates. Glucocorticoids, sex hormones, glucagon, adrenaline, prolactin, somatotropic and thyroid hormones are counterinsular, although some of them have insulin-like action. The interaction between insulin and counter-insulin hormones ensures adaptive

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changes in metabolism, affecting all functions of the body.

MATERIALS AND METHODS (REVIEW)

In this article we analyzed scientific works which were done about the changes and formations of human body during pregnancy

The most important point of today's report is the following. Analysis of clinical and laboratory data reflecting the state of metabolism in unreported pregnancy reveals many similarities with the early hypoglycemic stage of insulin-independent diabetes mellitus. According to T. A. Klyushina (1977), V. G. Baranov (1983), E. Pedersen (1979), M. N. Koch et al. (1986), the state of metabolism in an unreported pregnancy is characterized by an increase in counter-insular hormones, a decrease in the secretion of insulin origin with an unfavorable level of influence on the fetus and newborn. Changes in oral and intravenous glucose tolerance tests, inhibition of the utilization of ketone-refined fatty acids and ketone bodies in the blood are taken into account. All these changes are similar to the early hypoglycemic stage of non-insulin-dependent diabetes mellitus.

For diabetes mellitus of both types, both insulin-independent and insulin-independent, a decrease in the biological effect of insulin is characteristic. This is the main pathogenetic mechanism of this disease. In diabetes mellitus type I, a decrease in the biological effect of insulin is associated with a deficiency of the hormone, and in insulin-independent diabetes mellitus - with high insulin resistance of tissues with normal or even increased insulin content in the blood. In the first case, we are talking about absolute insulin deficiency, and in the second - about relative.

A decrease in the biological effect of insulin in diabetes mellitus leads to activation of the polyol cycle (sorbitol pathway) - an insulin-independent pathway for glucose utilization. This changes the permeability of the basal membrane of cells and the function of the lens of the eye, vascular endothelium and nervous tissue.

The clinical expression of insulin deficiency in diabetes mellitus is universal capillaropathy. Retinopathy is a reflection of this pathology. The functional stage of retinopathy in diabetes mellitus is characterized by the expansion of the venous capillary network, an increase in its permeability, microaneurysms, and pericapillary edema.

Similar changes in the microcirculatory bed have been found during physiological pregnancy and are also accompanied by an increase in blood viscosity in the venous limb of the capillary and microcirculation disorders (Shalina R.I., 1982; Orlov V.I., 1987; Repina M.M., 1987).

In diabetes mellitus, there is damage to the autonomic and somatic nerves, visceral neuropathy, impaired vascular tone, lability of pulse and blood pressure, orthostatic hypotension, and sensory impairment.

Emotional instability, lability of pulse and blood pressure, postural hypotension, decreased tone of the urinary, hepatobiliary systems and gastrointestinal tract are also typical for uncomplicated pregnancy (Sadauskas V.M., 1976; Pytel Yu.A. and Zolotorev I.I., 1980; Shekhtman M.M., 1987; Shekhtman M.M. et al., 1989).

In diabetes mellitus, the activity of red blood cells is disrupted: their lifespan decreases, hemolysis increases, deformability decreases, aggregation increases, the hemoglobin spectrum changes with an increase in the synthesis of certain fractions that have an increased affinity for oxygen - and, as a consequence, tissue hypoxia develops.

As shown by the works of T. S. Petrashenko (1984), A. A. Radionchik et al. (1987), all these features of erythrocytes are characteristic both of diabetes mellitus and of physiological pregnancy.

Thus, the decrease in the biological effect of insulin inevitably leads to the development of hypoxia, disruption of endothelial permeability and disruption of vegetative regulation. The consequence of the decrease in the biological effect of insulin in diabetes mellitus is the accumulation of under-oxidized products, ketone bodies, acidosis, and reduction of the bicarbonate buffer. According to M. M. Sapegova (1969), M. A. Bugach (1983), all this is inherent in uncomplicated pregnancy.

In diabetes mellitus, neoglucogenesis and lipolysis are activated, which is a compensatory measure to provide alternative energy substrates, and an increase in lipid peroxidation is observed. V. G. Baranov (1983), A. R. Bayants et al. (1986), R. I. Shalina et al. (1988), L. Ya. Sukanova et al. (1988) showed that all this is also characteristic of physiological pregnancy.

Lipid metabolism in uncomplicated pregnancy is characterized as atherogenic dyslipoproteinemia of types II b and IV, which are characterized by a significant increase in triglycerides, cholesterol, and very low-density lipoproteins (Menshikov V. V., 1982; Chernukha G. A., 1987). These types of dyslipoproteinemia are also characteristic of diabetes mellitus. In the third trimester of uncomplicated pregnancy, an increase in serum non-esterified fatty acids is noted, which is also characteristic of diabetes mellitus.

The hemostasis system during uncomplicated pregnancy is characterized by hypercoagulation, which

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is the initial stage of chronic DIC syndrome, characteristic of diabetes mellitus.

As established by V.V. Potemkin (1986), N. V. Strizhova, V. D. Dzhaguga (1986), both conditions are characterized by activation of the kallikrein- kinin system.

The features of catecholamine metabolism in diabetes mellitus and uncomplicated pregnancy are similar. They are reduced to activation of the sympathetic -coadrenal system. There is a tendency to increase the excretion of catecholamines and their metabolites. The relative activity of individual stages of catecholamine metabolism is characterized by activation of dopamine synthesis, a decrease in the synthesis of norepinephrine and, to a greater extent, adrenaline, and a decrease in the inactivation of catecholamines along the path of formation of vanillyl -mandelic and homovanillic acids (M. M. Shekhtman, 1976). For the exchange of catecholamines in the dynamics of uncomplicated pregnancy (from the first to the third trimester) and in the dynamics of diabetes mellitus (from 5 to 15 years), a tendency towards normalization of the indices of sympathetic-adrenal activity, both quantitative and relative exchange of catecholamines, is characteristic (Bolshakova T. E., 1973; Shekhtman M. M., 1976).

The function of an organ is closely related to the state of metabolism and is its reflection.

Renal function in the first trimester of physiological pregnancy is characterized by an increase in the glomerular filtration rate and renal blood flow, which is similar to diabetic nephropathy with a preclinical stage of Kimelstiel-Wilson syndrome. As insulin deficiency progresses in the dynamics of diabetes mellitus, a decrease in these indicators is noted. Similar dynamics of the glomerular filtration rate and renal blood flow are also characteristic of uncomplicated pregnancy in the dynamics from the first to the third trimester (Shekhtman M. M. et al., 1982; Potemkin V. V., 1986).

In diabetes mellitus, there is a decrease in albumin synthesis and an increase in globulin synthesis by liver cells and the reticuloendothelial system, as well as a deterioration in the excretory function of the liver. The same changes in function are characteristic of physiological pregnancy, as shown by A. G. Mazovetsky, V. K. Velikov (1986), M. N. Kochi et al. (1986).

Thus, all of the above allows us to conclude that during physiological pregnancy there is a relative insulin deficiency, progressing from the first trimester to labor. In other words, we can state that the basis of adaptation is a decrease in the biological effect of insulin, being its trigger and a factor supporting the adaptive restructuring of metabolism.

The subsequent sequence of changes in the systems regulating metabolism can be imagined as follows. The most important consequence of relative insulin deficiency is the movement of ions (sodium, potassium, chlorine, calcium, hydrogen, etc.) and hypoxia, which affects the action potential, i.e. the activity of excitable tissues: nervous and muscular. Activation of hypothalamic neurons leads to the production of neuropeptides and mediators and, consequently, changes the activity of the endocrine system. The latter, in turn, affects the state of the cell membrane and antioxidant activity (thereby controlling the action potential), as well as the concentration of secondary messengers and ATP synthesis. The amount of macroergs determines the activity of all cells in the body, including cells of the immune system (R. V. Petrov, 1983).

Looking at the problem of the body's adaptation from a different angle explains why the biological effect of insulin should be reduced. Adaptation implies a change in metabolism in accordance with the new needs of the organism, i.e. a change in the synthesis of substances either qualitatively or quantitatively. In this case, the synthesis of substances must be preceded by the breakdown of proteins, fats, carbohydrates, nucleic acids into primary biomolecules - building blocks, from which synthesis will then be carried out in accordance with the new conditions of the organism's existence. Since insulin is "responsible" for the synthesis of proteins, fats, carbohydrates, etc., their breakdown is possible only with a decrease in its biological effect.

Thus, clinical and laboratory analysis of the - physiological process - pregnancy, allows us to establish that a decrease in the biological effect of insulin is the material substrate that underlies the body's adaptation to pregnancy.

The most important consequence of relative insulin deficiency for understanding the essence of the problem under consideration is hypoxia.

It is known that life activity is a continuous adaptation. Its essence lies in the restructuring of metabolism - according to the needs of the organism and the conditions of the external environment. This is reflected in general adaptation reactions. General adaptation reactions of training, activation, chronic and acute stress are known. Various general adaptation reactions develop in response to stimuli of different strength and duration. As a rule, a general adaptation reaction of training develops in response to a weak stimulus. As the effect of the previous strength continues (or with an increase in the stimulus), it turns into a general adaptation reaction of chronic or acute stress (data from Garkvi L.Kh. et al., 1979; Selye G., 1960).

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Endogenous irritants that cause the development of a general adaptation reaction are hypoxia, changes in the concentration of ions, metabolites, water, etc. due to a decrease in the biological effect of insulin that occurs during adaptation. Exogenous influences only modify endogenous hypoxia and other factors. Hypoxia is minimal in the general adaptive reaction of activation - the least insulin deficiency, and in the general adaptive reaction of acute stress - the greatest. As established by L. H. Garkvi et al. (1979), general adaptive reactions develop in stages and are accompanied by characteristic changes in the activity of the cerebral cortex, hypothalamic-pituitary system, adrenal glands, immune system, hemostasis system and peripheral blood cells.

Physiological pregnancy as one of the manifestations of life is also an adaptation process. For the first half of pregnancy and from the 7th day of the postpartum period, a general adaptation reaction of training is characteristic. For the second half of pregnancy and the first week of the postpartum period, a general adaptation reaction of chronic stress is characteristic. During labor, a general adaptation reaction of acute stress is observed. In the adaptation reaction of training, the stages of orientation, restructuring and training are distinguished. In the adaptation reactions of chronic (as well as acute) stress, the stages of anxiety, resistance and exhaustion are noted.

It has also been established that similar general adaptive reactions may arise with stimuli of different strength. This is due to the existence of different levels of reactivity of the organism. L. H. Garkvi et al. (1979) identified 10 such levels of reaction, which the authors called "reaction levels". The most significant difference between the "reaction levels" is the level of energy expenditure: at low "levels" they are lower, and therefore more beneficial to the organism.

Physiological processes (adaptation) and pathological ones (maladaptation) develop according to the same laws, having their own common mechanism as a basis. This common mechanism, which is inherent in the norm and pathology, is a decrease in the biological effect of insulin. What distinguishes adaptation from maladaptation is the correspondence (in the first case) and inadequacy (in the second) of the resulting restructuring of metabolism to the needs of the organism or the influences of the environment.

The uniqueness of the physiological gestational process is that it combines adaptation and maladaptation: adaptation, since this process is physiological, and maladaptation, since it occurs at high "floors" of reaction (the amount of synthesized substances, in particular hormones, increases significantly), which is not beneficial and is not inherent in an adult healthy organism.

Using the example of the physiological gestational process, one can trace how, under the influence of an endogenous stimulus - hypoxia, general adaptive reactions arise, replacing each other. During labor, the "floor" of the response increases.

While physiological pregnancy is an adaptation process, hypertensive disorders is a manifestation of maladaptation. In recent years, the term hypertensive disorders has been used to refer to late toxicosis of pregnancy. We believe that such an interpretation of the term hypertensive disorders is too narrow and does not contribute to a better understanding of the pathophysiological mechanisms of this pregnancy complication.

By the term hypertensive disorders we mean maladaptation, i.e. any deviation from the physiological course of pregnancy: both obstetric complications and extragenital diseases that arose or worsened during the gestation process. This is hypertensive disorders in the broad sense of the term. Only obstetric complications ("obstetric hypertensive disorders") we consider as hypertensive disorders in the narrow sense of the term. Late toxicosis of pregnancy is a special case of "obstetric" hypertensive disorders.

It is known that the organism is a self-regulating system. Self-regulation is carried out due to the presence of reverse afferentation of functional systems. Pathological afferentation from the periphery of the functional system includes compensatory mechanisms and normalizes the activity of the organism.

Pathological afferentation in hypertensive disorders is hypoxia that does not correspond to the required level: it can be either more or less pronounced. More or less hypoxia corresponds to more or less relative insulin deficiency, which is not typical for uncomplicated pregnancy. The occurrence of pathological hypoxia is evidence of a "breakdown" in the systems regulating metabolism, which disrupts the normal course of the adaptation process. Disturbances in regulatory systems can occur at any level of regulation: the cortex, subcortical formations, suprasegmental and segmental parts of the autonomic nervous system, immune, endocrine systems, enzymatic, receptor, genetic apparatus of the cell, etc.

They can be both congenital and acquired, organic or functional. As stated earlier, in response to an irritant, general adaptive reactions develop in the body. Hypoxia that does not correspond to the required one leads to the development of general adaptive reactions that are not characteristic of physiological pregnancy. Therefore, the detection of one of these reactions during the

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gestation process also indicates hypertensive disorders in the broad sense of this term.

The peculiarities of these adaptation reactions can lead to both post-term pregnancy (since better microcirculation, high cAMP, predominant activation of the cerebral cortex), and to the threat of interruption (since oxytocin synthesis is increased), bleeding during childbirth (due to hypo- and isocoagulation), fetoplacental insufficiency; fetal suffering, intrauterine growth retardation, frozen pregnancy (since there is less "shielding" of the fetus, the rejection reaction is activated), abnormalities of labor (since the ratio of catecholamines characteristic of physiological pregnancy is changed); the appearance of nausea or "non-toxic" vomiting against the background of rapid weight gain in women.

The degree of expression, the rate of increase of disturbances and specific organ localization determine the clinical picture of hypertensive disorders in these adaptation reactions. With predominant expression of disturbances in the placenta, one can expect the development of feto -placental insufficiency. The development of adaptation reactions that are not typical for the gestational age can lead to premature birth, bleeding, abnormalities of labor, and be the cause of bearing and the occurrence of early and late toxicosis of pregnancy.

Let us consider late toxicosis of pregnancy from the perspective of the whole organism, i.e. from the perspective of regulating metabolism.

The increase in insulinemia (Klyushina G. A., 1977), glucocorticoids (Bazhanova L. P. et al., 1973; Volkova N. N., 1987) and adrenaline (Arzhanova O. A., 1978; Ventskovsky B. M., 1978; Kuryleva K. A., Malykh T. A., 1978; Gazayan M. G., 1987) indicates an increase in relative insulin deficiency in late toxicosis of pregnancy. With prolonged existence of late toxicosis, a decrease in glucocorticoids (Bazhanova L. P. et al., 1973; Vakhnina D. A. et al., 1979; Palladi G. A., 1987), adrenaline is noted ; the synthesis of norepinephrine predominates (Shekhtman M. M. et al., 1982). This corresponds to the stage of exhaustion of the adaptive reaction of chronic stress. Under these conditions, adrenaline, acting on α -receptors, increases the release of the Hageman factor, reduces the level of platelets and plasma fibrinogen (Almazov V. A., 1983).

Other clinical and laboratory data also indicate a greater relative insulin deficiency in late toxicosis compared to physiological pregnancy. This becomes obvious when comparing two pathological conditions: late toxicosis of pregnancy and insulin-independent diabetes mellitus, its early stages, occurring with normoglycemia or hypoglycemia.

More pronounced (compared to physiological pregnancy) relative insulin deficiency in late toxicosis of pregnancy leads to significant metabolic disorders.

When the sorbitol pathway is activated, osmotically active substances accumulate in the cells : sorbitol and fructose, which leads to an increase in osmotic pressure in the cells and their edema. At the same time, electrolyte disturbances occur: sodium accumulates in the cells, and potassium is lost. Such disturbances are also characteristic of diabetes mellitus (Shekhtman M. M. et al., 1982; Mazovetsky A. G., Velikov V. K., 1986).

Activation of the insulin-independent pathway of glucose utilization in the vascular endothelium (more pronounced than in physiological pregnancy) promotes further activation of the blood coagulation system. Due to a decrease in anticoagulant activity (Kopteva L.N., 1982; Ganina A.A., 1985; Sotnikova L.G. et al., 1986; Shalina R.I., Abramchenko V.A. et al., 1988), the effect of endoperoxide on platelet membranes increases. All of the above reasons underlie the progression of DIC syndrome with its transformation into subsequent stages, which is characteristic of both pathological conditions: diabetes mellitus and late toxicosis of pregnancy (Makatsaria A.D., 1981; Potemkin V.V., 1986).

In both pathological conditions (late toxicosis of pregnancy and diabetes mellitus), due to further deterioration of glucose utilization, the use of fat as an alternative energy substrate continues to increase, which will lead to increased lipid peroxidation.

Lipid peroxidation inhibits the ability of the capillary endothelium to synthesize prostacyclin, shifting the equilibrium toward thromboxane formation (Efimov A.S. et al., 1988; Shalina R.I. et al., 1988). The absence of correction of lipid peroxidation by antioxidant activity (in contrast to physiological pregnancy) leads in these conditions to damage to the lipid layer of the basal membrane, while in uncomplicated pregnancy, damage to the basal membrane is limited to the protein layer only. Thus, with severe relative insulin deficiency and hypoxia, which are observed in diabetes mellitus and late toxicosis of pregnancy, all layers of the basal membrane of cells suffer. The consequence of these disorders is a further increase in the porosity of the basal membranes (the glomerulus of the kidneys in particular). The endothelial membrane in the renal tubules is simultaneously a tubular basal membrane over a significant area. All this determines the progression of disorders of glomerular and tubular functions of the kidneys. Clinically, this is expressed in the appearance of proteinuria, which is characteristic of the proteinuric stage of Kimelstil -Wilson syndrome in diabetes mellitus and for late toxicosis of pregnancy.

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The addition of hypertension with the activation of α -receptors and the depletion of the renal depressor systems marks the transition to a more severe stage of late toxicosis of pregnancy, which is similar to the nephrosclerotic stage of Kimmelstiel -Wilson syndrome in diabetes mellitus.

Reflection of progressive metabolic disorder are other indicators of deterioration of glomerular and tubular function of the kidneys in late toxicosis of pregnancy; such as decreased glomerular filtration rate, increased levels of creatinine and uric acid in plasma, and impaired renal concentrating function.

In late toxicosis of pregnancy, the most significant changes occur in the kidneys, and different forms of late toxicosis are characterized by different changes in them. In biopsy of women who have suffered late toxicosis of pregnancy, the most common finding is a picture of glomerular -capillary endotheliosis : a decrease in the lumen of the capillary loops of the glomeruli due to diffuse swelling of endothelial cells, deposition in the mesangium fibrinoid material, immunoglobulins (Gunn T.N., 1982; Nikolaev A.Yu., Rogov V.A., 1989). This picture is also characteristic of different stages of diabetes mellitus (Shulutko B.I. et al., 1982).

In late toxicosis, a violation of the aldosterone-antidiuretic hormone ratio was revealed: a decrease in the first and an increase in the second hormone (Shekhtman M. M. et al., 1982). A decrease in aldosterone contributes to an uncompensated decrease in sodium-potassium ATPase, which leads to edema. An increase in the secretion of antidiuretic hormone contributes to an increase in arterial pressure. The main causes of hypertension in late toxicosis of pregnancy are an increase in the synthesis of norepinephrine, prostaglandins of class F 2 α, the loss of potassium ions by cells and the accumulation of sodium ions in them (depolarization of the cell membrane).

The clinical picture of preeclampsia is determined by increasing ketoacidosis (nephrotic variant) and decreased glycemia. Diplopia, facial paresthesia (numbness of the lips, tongue, chin), headache, hunger, nausea, vomiting are symptoms of a hypoglycemic state in diabetes mellitus, similar to the precursors of preeclampsia (Potemkin V.V., 1986; Serkov V.N., 1989). Solar syndrome (epigastric pain), vomiting, headache, drowsiness are characteristic symptoms of ketoacidosis. Stage II in diabetes mellitus. This syndrome is also typical for preeclampsia.

Eclampsia is a hypoglycemic coma associated with ketoacidosis. Stage II. Eclampsia, like hypoglycemic coma in diabetes mellitus, is manifested by confusion, increased muscle tone, tonic and clonic convulsions, sometimes resembling an epileptic seizure; they are characterized by dilated pupils, normal tone of the eyeballs, increased periosteal and tendon reflexes.

It is known that in case of repeated pregnancy, late toxicosis in some women is milder or does not develop. This can be explained based on the laws of adaptation of the body. Let us recall that the completeness of the biological effect of insulin depends on the sensitivity of tissues to this hormone. In case of repeated pregnancies, tissue insulin resistance is lower due to greater production of estrogens (Orlova V.G., 1984). Consequently, in case of repeated pregnancy, the biological effect of insulin is higher. This circumstance requires less production of counter-insular hormones and less compensatory hyperinsulinemia; ketonemia decreases - and therefore the possibility of developing late toxicosis of pregnancy, preeclampsia and eclampsia.

In addition, according to the law of immunological memory, the synthesis of antibodies (including blocking immunoglobulins) increases with repeated pregnancies (Petrov R.V., 1983). Consequently, even if the cause that caused the development of late toxicosis of pregnancy remains, with repeated pregnancies, blood microcirculation decreases, the degree of which determines the clinical picture of this form of hypertensive disorders. Thus, with repeated pregnancies, immunological control increases, i.e., the "reaction floor" decreases.

Implementation of adaptation at lower "response levels" is one of the body's compensation mechanisms.

Another compensatory mechanism is hypoxic training. Its essence is as follows. With each pregnancy, due to a decrease in the biological effect of insulin, hypoxia develops, aggravated by anemia of pregnant women and blood loss during childbirth. Hypoxic training increases the body's resistance, lowering it to a low "response level". However, this cannot continue indefinitely: with repeated, especially frequent births, due to the development of iron deficiency anemia, the degree of hypoxia increases so much that compensatory mechanisms prove ineffective. Compensation is disrupted, the body is transferred to higher "response levels", which are characterized by a greater degree of decrease in the physiological effect of insulin. Clinically, this is expressed in the fact that after the fourth or fifth repeated birth, the incidence of hypertensive disorders increases again (Ukybasova T.M., 1988).

For late toxicosis of pregnancy, liver damage is a natural consequence. The condition of the liver in late toxicosis of pregnancy indicates a marked decrease in the biological effect of insulin.

Late toxicosis is characterized by a decrease in the synthesis of total protein, but albumin synthesis suffers

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more (Koch M.N. et al., 1986; Serov V.N. et al., 1989). This is associated with damage to the liver cell (Akunts K.B. et al., 1983), as well as with the progressive accumulation of fibrinolysis inhibitors (α 2-globulins). In other words, a decrease in the albumin-synthetic function of the liver is directly dependent on the degree of decrease in the biological effect of insulin and reflects the state of the hemostasis system.

A decrease in plasma albumin, as well as the activity of the sodium-potassium pump, antioxidant activity and an increase in antidiuretic hormone are the main causes of progressive edema in late toxicosis. Acute fatty hepatosis of pregnancy is a severe complication of pregnancy. Its pathogenesis becomes clearer when compared with the mechanism of development of fatty hepatosis in diabetes mellitus. Fatty hepatosis is the most common liver lesion in diabetes mellitus.

Acute fatty hepatosis of pregnancy is a form of late toxicosis of pregnancy with predominant liver damage, indicating the depletion of compensatory mechanisms: a decrease in the glucocorticoid function of the adrenal glands and antioxidant activity; significantly expressed relative insulin deficiency with a decrease in the synthesis of protein and glycogen, accompanied by the development of acute DIC syndrome, as well as a deficiency of lipocan, which makes it impossible to use fatty acids as an alternative energy substrate (data from Martynov K. A., Farber N. A., 1982; Repina M. A. et al., 1987; Shekhtman M. M., 1987).

Hypotension of the intestinal tract, bile and urinary tract, pyelorenal reflux (one of the reasons for the frequent addition of pyelonephritis), disruption of the autonomic innervation of the lungs (one of the reasons for the protracted course of bronchitis, pneumonia) - these manifestations are often seen in late toxicosis of pregnancy and are typical for diabetes mellitus.

Both pathological conditions are characterized by decreased tone and peristalsis of the stomach, atony of its cardiac and pyloric sphincters, and slowing of the evacuation function. These signs serve as a manifestation of damage to the autonomic nervous system and the microcirculatory bed of the stomach (Mazovetsky A.G., Velikov V.K., 1986; Potemkin V.V., 1986; Shekhtman M.M., 1987; Shekhtman M.M. et al., 1989).

The most common nervous system lesion in diabetes is peripheral neuropathy. It is expressed in symmetrical pain and paresthesia in the extremities, lumbar region, cramps in the calf muscles. Pain at rest is typical, especially at night, preventing sleep. These same symptoms also apply to early manifestations of late toxicosis of pregnancy. When the spinal nerves are affected, neuritis, radiculitis, neuralgia occur. This also occurs in late toxicosis of pregnancy.

The clinical expression of relative insulin deficiency in diabetes mellitus is universal capillaropathy, which is most pronounced in the glomeruli of the kidneys, the retina of the eye, and the distal parts of the extremities. The most demonstrative changes are in the fundus, reflecting the state of microvessels in other organs and tissues. These changes, revealed in compensated diabetes mellitus type II and late toxicosis of pregnancy, are of the same type and are manifested by microaneurysms, expansion of the venous network of capillaries with an increase in their permeability and the formation of pericapillary edema; an increase in blood viscosity and the development of sludge phenomena are noted. With the addition of hypertension - spasm of arterioles, hemorrhages, thrombosis (Mazovetsky A. G., Velikov V. K., 1986; Makatsaria A. D., 1981; Mukhamedov Kh. A., 1984; Repina M. A. et al., 1987).

Changes in the immune system in both pathological conditions are similar. They are expressed in the suppression of general immunity (Petrov R. V., 1983; Gavrilenko A. S. et al., 1987; Nazarov V. G., 1987; Sotnikova N. Yu. et al., 1987; Tsvetkov V. V. et al., 1987). Activation of the humoral link is noted: the synthesis of antibodies increases, the formation of immune complexes increases (Mazovetsky A. G., Velikov V. K., 1986; Potemkin V. V., 1986; Osadchaya O. V. et al., 1988), although their deposition in tissues, as well as the degree of anaphylaxis, may vary. This is due to the different degree of reduction of the biological effect of insulin in late toxicosis of pregnancy and diabetes mellitus, different "levels" of response in these pathological conditions, and also depends on the nature of compensatory mechanisms. In both pathological conditions, a decrease in T-lymphocytes and their proliferative activity, as well as depression of apoptosis, were revealed. The acid-base balance in both forms of pathology is characterized by acidosis and a decrease in the bicarbonate buffer (Sabieva M. M., 1969; Serov V. N. et al., 1989).

Insulin resistance of tissues is minimal at the beginning of pregnancy and increases in its dynamics (Potemkin V.V., 1986; Orkodashvili L.Sh., 1987). Accordingly, relative insulin deficiency progresses from the first trimester to labor. Therefore, the development of adaptive reactions of chronic or acute stress in the first trimester of pregnancy will be accompanied by ketonuria and glucosuria due to the fact that at these times, in accordance with a smaller decrease in the biological effect of insulin, the glomerular filtration rate is increased. In the later stages of pregnancy, which are characterized by greater relative insulin deficiency (and,

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accordingly, a low glomerular filtration rate), the development of these adaptive reactions will be expressed differently: proteinuria, cylindruria, an increase in creatinine in the blood, but there will be no glucosuria and ketonuria.

The progression of relative insulin deficiency (hypoxia) leads to the development of a general adaptive reaction to acute stress, the clinical expression of which is eclampsia (cerebral variant), acute fatty hepatosis (liver variant), acute renal failure, hemolytic -uremic syndrome (renal variant), acute renal-hepatic failure (mixed variant).

The development of signs of intrauterine fetal distress is possible with any deviation of hypoxia in the mother's body from the required level (either greater or lesser), but with the exhaustion of both the mother's and the fetus' own compensation mechanisms. In both cases, the reaction of rejection of the "transplant" - the fetus - is activated due to the insufficiency of T-suppressors: in the first case, they are suppressed, and in the second - insufficiently activated. In both cases, the transfer of maternal immunoglobulins G through the placenta to the fetus is enhanced, causing the development of disorders in it.

CONCLUSION. The basis of life is adaptation to environmental conditions and the needs of the body. Physiological pregnancy as one of the forms of life activity is an adaptation process. Complicated pregnancy (hypertensive disorders) is nothing more than a violation of adaptation. Disadaptation can occur as a result of disorders in the metabolic regulation systems at any level.

The basis of adaptation is hypoxia as a result of a decrease in the biological effect of insulin. The basis of maladaptation (including hypertensive disorders) is hypoxia, which does not correspond to the needs of the body and external influences. It, being a pathological afferentation for functional systems, includes compensatory mechanisms of self-regulation, which in some cases leads to the normalization of the adaptation process.

When compensatory mechanisms are exhausted, "obstetric" hypertensive disorders develops. " Pretoxicosis " is an intermediate state when signs of deviation from the physiological course of pregnancy and activation of compensatory mechanisms are simultaneously revealed.

Adaptive restructuring is reflected by general adaptive reactions. There are four such reactions: general adaptive reaction of activation, training, chronic and acute stress. For the first half of physiological pregnancy and from the 7th day of the postpartum period, a general adaptive reaction of training is characteristic. In the second half of pregnancy and the first week of the postpartum period, a general adaptive reaction of chronic stress is observed, and during labor, acute stress. The appearance of other general adaptive reactions that are not characteristic of this period of the gestation process may indicate the development of hypertensive disorders. The degree of expression of disorders (and primarily microcirculation and the hemostasis system), inherent in these general adaptive reactions, not typical of physiological pregnancy, and the organ localization of disorders determine the clinical picture of hypertensive disorders. Late toxicosis of pregnancy is a special case of hypertensive disorders. It is characterized by damage to various organs and systems, however, kidney damage most often comes to the fore. Multiple organ functional failure in late toxicosis of pregnancy, as in diabetes mellitus, is caused by a decrease in the biological effect of insulin that does not meet the needs of the body.

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MORPHOLOGY OF OVARIES IN RATS BORN UNDER HYPOTHERIOSIS CONDITIONS

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Abstract:

Morphological changes in the dynamics of postnatal ontogenesis of ovaries were studied in postnatal ontogenesis of ovaries of offspring born from rat mothers with hypothyroidism under experimental conditions. It was found that all morphofunctional components of the ovaries of the experimental group lag behind in the development of all morphofunctional components of the ovaries of the control group compared to rats of the generation, the ratio of the cortex and medulla layers and the development of follicles were preserved in a hypercellular form for 14-30 days, the vessels increased in size and branching, it was found that the mesenchymal tissue in the medulla of the ovaries continued to increase.

Keywords: morphology, mother rat, hypothyroidism, ovarian ontogenesis, histology.

RELEVANCE OF THE PROBLEM: Every year, due to the hypofunctional state of the endocrine system, 4.8-10.6% of cases of infertility occur among women of reproductive age, developing under the influence of unknown etiological factors. This is explained by the dysfunction of the thyroid gland.

RESULTS AND DISCUSSION: Non-specific response of the fetal gonads to the influencing factors depends on hypoxia and dyshormonal factors, which results in hyperplastic processes developing in the ovary in some cases, and underdevelopment and insufficiency in others. Important factors are pathological factors of the first period of pregnancy, which improperly develop the female gonads. The morphological essence of the ontogenesis of the development of the reproductive organs of the offspring born from a hypothyroid mother continues with a slowdown in metabolism, a lag in normal development and the occurrence of systemic hypoplasia of the reproductive organs of the offspring. If several types of extragenital diseases are combined in the mother's body, this can lead to anomalies in the intrauterine development of paired reproductive organs, which can make up from 1.12% to 3.56%. If this is so, then in turn, during the intrauterine development of the genital organs, consisting of labile cells, under conditions of hypothyroidism, a metabolic disorder occurs, stimulation of most follicles in the ovarian tissue is sharply reduced. is delayed, and the oogon stage of germ cells in the development of the fetus causes a decrease in quantity, quality and size and preservation in the form of a reduction body. In postnatal ontogenesis of the ovary of the offspring born against the background of hypothyroidism, noticeable changes in the histioarchitectonics of the ovary, morphological growth retardation, a large number of underdeveloped follicles, an increase in the structures of the myxomatous center around the primordial follicles, and joints in 2 and 3 lamchi are noted. develops, it is established that it is accompanied by such morphological manifestations as an abundance of reducing bodies and the development of tumors in the tissues. On the 21-30th day of hypothyroidism, the results of oocyte development in the center of the follicles are not detected in the ovary, the cells that make up the tissue parenchyma are granular small epithelial cells and foci of active fibroblast proliferation. Theca cells are characterized by reduced sizes, metaplasia, and a trophic appearance.

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SYSTEM ANALYSIS OF THE LEVEL OF TRAINING OF POSTGRADUATE EDUCATION OF SECONDARY MEDICAL PERSONNEL

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Abstract:

New medical technologies and modern development of medical science, which determine the need for systematic postgraduate training, are considered. So far, there is no scientifically grounded technology for the implementation of continuing medical education and the motivation of nursing staff to systematic advanced training has not been studied. The article presents the opinion of experts regarding independent education in specialty of middle medical personnel and analysis of motivation to systematic advanced training.

Keywords: nursing staff, postgraduate training, system, motivation.

RELEVANCE OF THE STUDY. One of the most important components of any country's health system is nursing. The tasks set by the country's leadership for the healthcare system largely depend on the qualifications, professional skills, creativity and entrepreneurial qualities of medical personnel. Reforming the healthcare system, in particular the entire system of postgraduate education of secondary medical personnel – is not a fashion statement, but a time requirement due to various reasons, including personnel problems related to the existing conditions of social development of society, the lack of material incentives, conditions for professional development and career growth, and a decrease in the prestige of the profession in society. As a result of the development and implementation of the latest innovative technologies, the requirements for both the level of knowledge of secondary medical personnel and the acquisition of new competencies have increased. Today, a nurse of modern dental office should not only know, but also have the skills to work with modern equipment, have an idea of personal responsibility when conducting medical manipulations. All this requires an in-depth comprehensive study of the activities of secondary medical personnel of dental institutions and the development of scientifically based recommendations for improving the quality and efficiency of their work.

And research to a certain extent serves the fulfillment of tasks, the Decree of the President of the Republic of Uzbekistan dated May 6, 2019 No. PP-4310 "On measures for further development of the system of medical and pharmaceutical education and science", the Decree of the President of the Republic of Uzbekistan dated April 7, 2020 No. PP-4666 "On measures for the introduction of a completely new system of training and continuous professional development development of personnel in the medical and sanitary sphere", as well as in other regulatory documents adopted in this area. The conducted medical and social studies made it possible to more objectively and fully assess the quality indicators of postgraduate education, the effectiveness of its implementation, to identify the strengths and weaknesses of this process in order to optimize it in the process of training specialists of secondary medical personnel of dental clinics.

The aim of the study is to analyze the shortcomings of the educational process of continuous and continuous professional development courses for middle-level employees of medical institutions of dental profile at the postgraduate level;

Materials and methods - ofresearch-710 secondary medical personnel (including 504 medical personnel of dental (therapeutic, surgical and orthopedic) departments and 204 dental technicians) were selected as the subject of the study, as well as 317 experts: chief physicians and department heads-38 people, teachers of advanced training courses-37 people, dentists – 242 people working in dental institutions in Tashkent, Samarkand, Bukhara, and Surkhandarya regions. The subject of the study was institutions that carry out postgraduate education of employees of the secondary medical level of the health care system. Research methods. In the process of conducting scientific research, the following methods were used: statistical, social and hygienic methods based on the basic principles of evidence-based medicine.

RESEARCH RESULTS. According to the data of the Ministry of Health of the Republic of Uzbekistan for 2010-2020 revealed, a significant dynamic of changes in the personnel component of the entire system of secondary medical personnel among the population of our state was revealed (Table 1).

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Table 1.
Personnel structure of secondary medical personnel of dental institutions for 2014-2020. (per 10,000 population)

Indicators	2014	2015	2016	2017	2018	2019	2020
Number of nursing staff	103.4	102.6	102.4	101.3	101.6	103.6	102.8
Number of dental technicians	0.32	0.36	0.30	0.34	0.38	0.41	0.45

An analysis of the dynamics of the population's provision with nurses, as well as indicators of the ratio of doctors to secondary medical workers in the period from 2014 to 2020, showed the presence of a reliably positive trend in the current personnel policy in the republic. If in 2014 practitioners there were an average of 2.31 mid - level medical workers per medical practitioner, then in 2020 there is a significant increase in the number of doctors, it was 3.23. The monitoring of the ratio of doctors to nurses has significantly improved.

The activities of secondary medical personnel are subject to increased requirements, which are taken into account in the search for new approaches to improving the quality and optimization of their work. It should also be emphasized that as of January 1, 2020, the provision of residents of our republic with secondary medical personnel is 100%.

I would like to note another aspect of improving the quality of training of secondary medical personnel, this is the tendency to increase the share of medical workers in order to improve their professional competencies: in 2014, this indicator was 66.4 ± 0.25%, while in 2019 it reached 72.1 ± 0.24%, which indicates a positive desire of secondary medical workers they need to improve their competence. On the other hand, the share of unskilled nurses remains high (33.6±0.25% in 2014 and 27.9±0.24% in 2019) (Figure1).

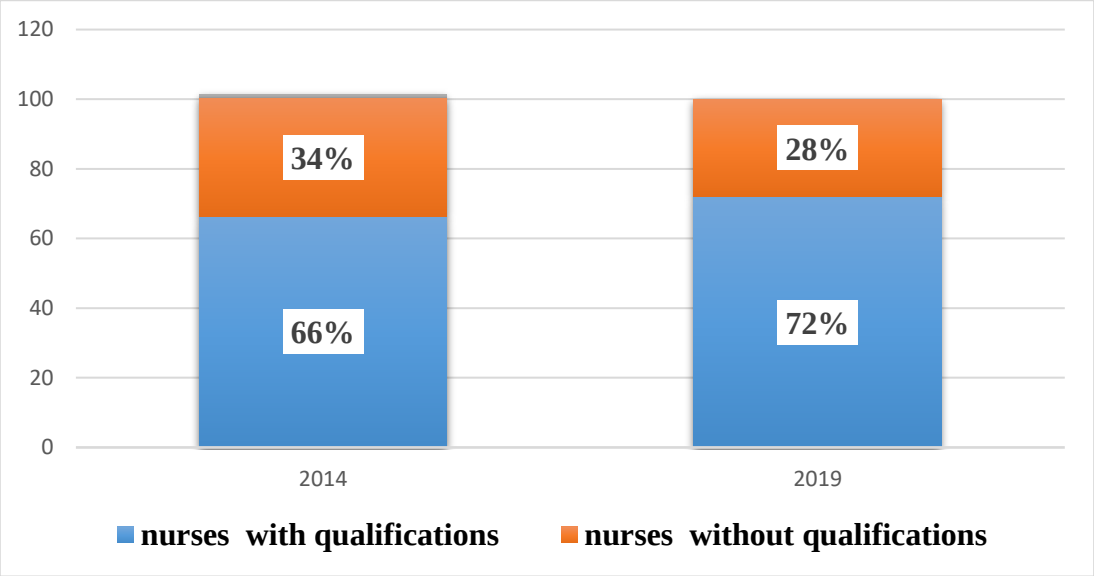

Figure 1. Distribution of SMR according to qualification categories

As you can see, today it is necessary to work out measures, develop new approaches to improving the skills of middle-level medical staff, and do not discount the increase in the influx of young specialists without certain qualification categories. All this confirms our data on the need for postgraduate training and additional training of medical staff.

A sociological survey of nurses of dental institutions (710 respondents) using a specially developed questionnaire made it possible to create a medical and social portrait of the nursing profession. The average age was 37.0 ± 2.1 years, the majority of respondents were women (97.9 ± 0.7%). The results of the analysis of marital status showed that more than half of the senior medical staff members are married (68.19±1.62%), divorced – 4.25,25±1.26,26%, widows - 5.0±0.9%, about 25.0±1.7% of respondents have never been married (Figure2).

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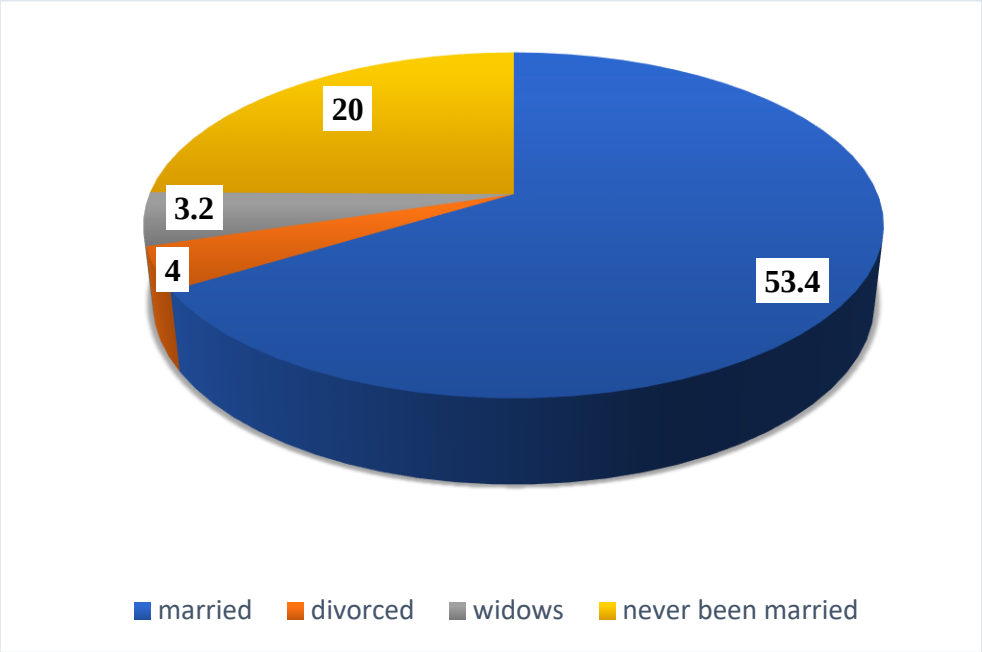

Fig. 2. Results of the survey on the question of the marital status of the SMR

The majority of respondents had children, while in 42.3 ± 1.81% of cases they had one child; two children-20.7 ± 1.3%; three or more children have about 2.0± 1.14% of respondents; about 29.6±1.77%; only 4.1 ± 0.6% refused to answer this question (Figure 3).

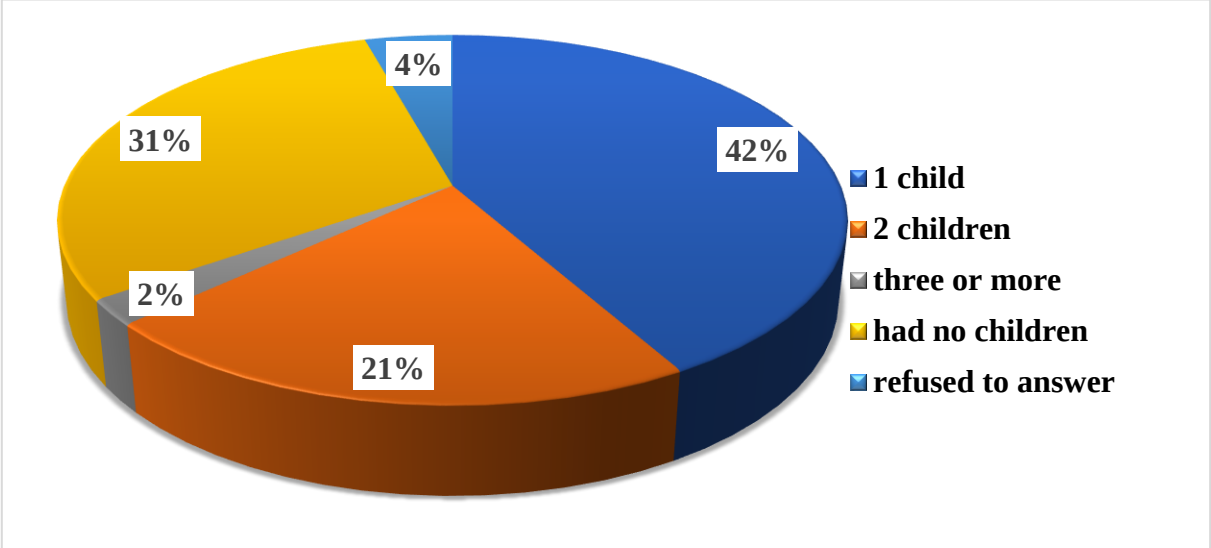

Figure 3. Results of the survey on children with disabilities

According to a number of sociological studies, the attractiveness of working with secondary medical personnel is determined by many factors, such as a favorable level of general income, good wages, social protection measures, income from providing paid services, etc.

The analysis of respondents ' answers to the question "Are you satisfied with your salary?" showed the following: as it turned out, only about 46.1±1.0% of respondents are satisfied with the salary received, against 54.1±1.0% of the total number of respondents who are not satisfied. This leads to the conclusion that the majority of patients are not satisfied with the salary of their work activities (Fig. 4).

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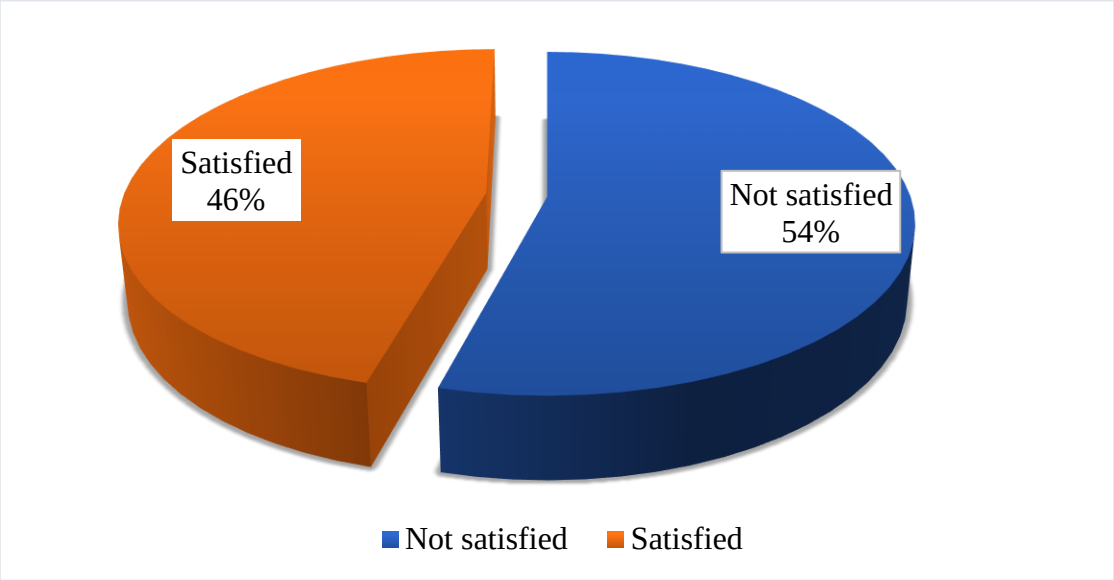

Figure 4. Respondents ' responses about the salary received

In the survey of respondents "Do you like your profession?" half of the respondents (48.5±2.1%) said that they liked their profession, 40.3±2.1% said that they could not answer clearly, 8.7±0.7% said that they did not like their profession, and 2.5 ±0.5% were indifferent to their profession (Figure5).

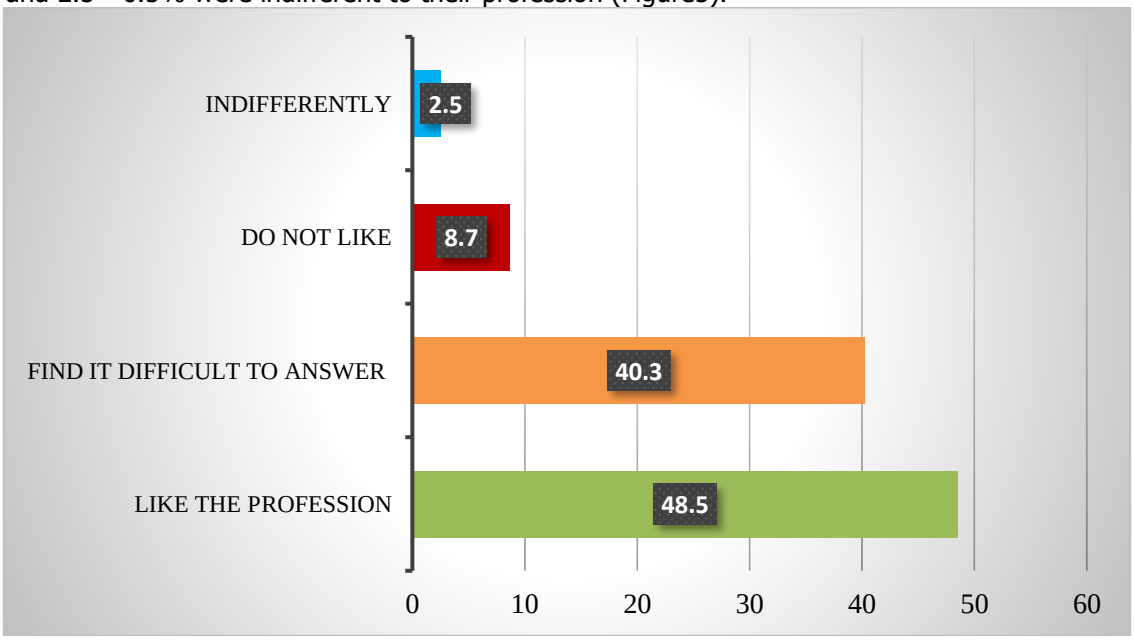

Figure 5. Distribution of respondents ' responses regarding к their profession

To the question "Would you like to work in another profession now?" only 12.1±1.4% of respondents answered positively, 49.3±2.1% found it difficult to answer, 37.6±2.1% of respondents wanted to stay in their profession.

When assessing the state of health, the respondents gave only a subjective assessment of their state of health, as can be seen from the answers, only 8.38±0.67% of respondents indicated the complete absence of diseases, the presence of good health, 48.7±2.1% of respondents have good health and rare colds, 20.9±1.7% of respondents have satisfactory health and fairly frequent cold sand 15.0±1.5% of respondents are constantly in poor health and have a history of chronic diseases.

At the same time, according to a number of authors, currently not enough attention is paid to the processes of developing scientifically based work standards, because depending on the changing working conditions of health facilities, the introduction of new medical equipment, it is necessary to constantly review all existing standards.

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Another interesting fact is that according to the absolute majority of respondents, there was an increase in the total amount of work performed, respectively, and the overall workload (46.34,±2.5% and 48.22±1.9%, respectively). Respondents also note an increase in the occurrence of stressful situations both at work (47.8±2.1%) and at home (20.2±1.7%), all of which affects relationships with others, both with relatives (7.5±1.1%), with colleagues (5.8±1.0%) and patients (3.2±0.6%), respectively.

The possibility of professional development and confidence in the future is considered in the concept of quality of working life due to the fact that the effective implementation of the employee's labor potential is impossible without his professional growth. The majority of average medical staff (55.2 ± 2.1%) believe that there are real incentives for professional development, a third are convinced that there are none (38.1 ± 2.0%), and 48.7 ± 2.1% have positive incentives for systematic professional development. The main measures that affect the quality of medical care are primarily financial incentives (29.6565 ± 1.44%), improvement of working conditions (19.3232±0.90%), continuous professional development, obtaining new skills and a sense of responsibility for the results of work (11.00±0.95%).

Table 2.

Comparative assessment of the educational process on PC cycles
(on a 10-point scale)

Estimated factor	Nurses	Dental technicians
Availability of theoretical knowledge	8.62±0.09	9.3232±0.11
Availability of professional competencies	7.90±0.2	8.46±0.16
Creation of an appropriate material and technical base for practical classes	8.1919±0.2020	8.4646±0.12
Professional qualities of teachers	9.1313±0.10	9.441±0.14
Introduction of an independent training system (evening, after work)	7.00±0.3	7.10±0.38
Ability to work with educational literature both in the institution and outside-	8.2525±0.1414	8.3232±0.77
Evaluation of clinical bases, including material and technical equipment	8.67±0.16	8.55±0.16
Indicator of premises for conducting training sessions	8.23±0.23	8.02±0.18
Potential not to lose the average salary of working labor	7.50±0.27	7.21±0.34
Ability to concentrate оный the learning process	8.31±0.18	9.00±0.16
Total scores of points	9.0±0.11	8.88±0.12

*Note: * - significance of differences (P<0.05)*

Thus, all SMRs noted a high level of teacher training (9.0 points or more) in the admission cycle. According to the cycle, a high level of theoretical training, appropriate equipment of classrooms, clinical bases for acquiring new competencies, a sufficient fund of educational literature, etc. was noted. As a rule, representatives of the secondary medical staff who have insufficient practical experience rate the training opportunities higher than those of a more qualified SMR (Table 2).

Table 3.

Assessment of distance and inpatient training by nurses and dental technicians (on a 10-point scale)

Estimated factor	Nurses (n=504)		Dental techniques (n=206)	
	Dist.Stat cycles	Static cycles	.Dist cycles.cycles	of Stat. cycles
Theoretical knowledge	9,5±0,3	7,6±0,2	9,2±0,19	7,3±0,1
Proficiency in practical skills	4,8±0,3	8,6±0,2	4,5±0,48	8,4±0,1
Material and technical base for conducting classes	9,2±0,2	6,5±0,1	9,3±0,3	6,2±0,1
Level teachers knowledge level	9.1±0.1	8.7±0.1	9.1±0.15	8.1±0.2
Availability of educational literature	9,6±0,2	5,5±0,2	9,2±0,34	5,4±0,2

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Ability to concentrate on the learning process	6,8±0,2	8,1±0,1	6,7±0,2	8,0±0,2
Amount of points	8,2±0,2	6,9±0,1	7,9±0,2	7,2±0,2

*Note: * - significance of differences (P<0.05)*

Among the significant factors, students noted the financial benefits of distance learning cycles both for the dental institution and for the trainees themselves, while the work/study balance on distance learning cycles was considered as a negative factor. Opportunities for practical skills and general clinical training are also significantly reduced in distance learning cycles.

During the survey, all students noted a high level of training of teachers on cycles (9.1±0.1-medical nurses, 9.1±0.2-dental technicians). It is noted that the cycles have a higher quality of theoretical training (9,5±0,3-medIcin nurse, 9,2±0,19-dental techniques), practical skills (4,8±8,3 –nurse, 4,5±0,48 – dental techniques). All participants noted the extremely high level of material and technical resources used in remote cycles (9.2±0.2-medicalcare of the nurse, 9.3±0.3-dental techniques). According to the cumulative scores, all students perceived the form of training on distance cycles as more preferable than on stationary ones: 8.2±0.5 and 6.9±0.1, respectively, for the nurse, 7.9±0.2 and 7.2±0.2 – dental techniques (Table 3.).

Analysis of the survey data of students who were trained in the PCSMR sector allowed us to draw the following conclusion: comparing the two forms of training (stationary and remote cycle), it was found that all SMRs of various directions prefer training in the remote cycle.

Thus, the results of the conducted sociological survey, analysis of the opinions of both experts and participants of the educational process themselves showed the need to reorganize and improve the entire system of organizing training, retraining and advanced training of secondary medical workers in accordance with the needs and trends in practical healthcare.

CONCLUSIONS: According to the results of the study, it is established that the existing system of organization of postgraduate training of secondary medical personnel has a number of significant shortcomings, while only every third medical worker is partially satisfied with it or does not suit at all. Consequently, it is necessary to modernize the system of advanced training of middle-level specialists, especially dental specialists, and create various forms of professionally oriented training based on the principles of continuing medical education.

The optimized model of organization of postgraduate training of secondary medical personnel on the basis of medical universities and multidisciplinary health care institutions was developed on the basis of the results of a questionnaire and sociological survey and an assessment of the quality of the current system of advanced training of secondary medical personnel.

The implementation of the program of an optimized model of postgraduate training for dental assistants and dental technicians contributes to improving the level of professional competencies, regardless of the basic level of qualification category and work experience.

The article defines the forms of implementation of the optimized model of postgraduate education of dental specialists on the basis of a funded system in the form of advanced training in accordance with the individual educational plan of professional development of a medical worker, as well as by accumulating academic credits.

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OPTIMIZATION OF METHODS OF TREATMENT AND PREVENTION OF POLYPOSIS RHINOSINUSITIS

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Abstract:

. According to the revealed changes in the indicators of hemostasis and blood rheology, the state of intestinal microflora, signs of immune inflammation, evaluation of the obtained results, the validity of the application of disaggregants, probiotics, and gravitational blood methods is shown. The obtained research results are the determining criterion for the developed by us combined method of anti-recurrence treatment and prevention of polyposis rhinosinusitis.

Keywords: polyposis rhinosinusitis, blood hemostasis, blood rheology, intestinal microflora, immune inflammation.

INTRODUCTION. Analysis of numerous scientific publications has shown that the problem of solving the issues of etiology, pathogenesis and pathogenetic treatment, acute and chronic rhinosinusitis does not lose its relevance [8].

In Uzbekistan, 14.7% of the population suffer from chronic polyposis rhinosinusitis. Over the past 10 years, the incidence has increased 2-fold Chronic polyposis rhinosinusitis is currently one of the most common diseases. Among the theories of the origin and development of polyposis rhinosinusitis, the most common are infectious-allergic autoimmune, neurotrophic and others. [2].

Despite the improvement of protocols of drug therapy, the main direction of treatment of polyposis rhinosinusitis remains surgical intervention. This pathology accounts for more than 2/3 of all operations performed for inflammatory diseases of the paranasal sinuses. However, even perfectly performed surgical intervention does not guarantee the cessation of recurrences of polyposis rhinosinusitis. As a rule, such patients undergo repeated surgical interventions, and long-term follow-up of patients operated on for polyposis rhinosinusitis allows to ascertain the recurrence of nasal polyposis in 85% of cases [3].

This is largely due to the complexity and variability of intranasal architectonics, the peculiar organization of the mucociliary system and microcirculatory channel of the nasal mucosa and paranasal sinuses, its active participation in the reactions of local immunity, the constant interaction of the nasal cavity with a variety of often damaging environmental factors.

These circumstances determine, on the one hand, the variety of causative factors involved in the formation of polyposis rhinosinusitis, and on the other hand, determine the relevance of the development of rational methods of prevention and treatment of postoperative changes in the nasal mucosa, based on modern ideas about the pathogenesis of polyposis rhinosinusitis.

According to the existing views, polyposis rhinosinusitis is a consequence of chronic inflammation consistently developing in the nasal mucosa, which is based on disorders of the nasal cavity architectonics; allergy; viral-bacterial, fungal contamination and microstructural changes of the nasal mucosa; imbalance of enzyme systems regulating arachidonic acid metabolism and other pathophysiological and pathochemical shifts mediated by the interaction of various cells, proinflammatory mediators and accompanied by a specific tissue reaction.

Data on the prevalence of polyposis rhinosinusitis (PRS) are abundant and evidence-based. This complex disease can occur independently or in combination with lower respiratory tract diseases and allergic diseases and is currently considered incurable [5].

Various medical and surgical methods are used in the treatment of MRS. According to modern principles, treatment should be approached more from therapeutic positions more than from surgical ones [3]. Otorhinolaryngologists try to use in most cases a combined approach in the treatment of ORS [6].

In our opinion, the analysis of the study of hemo-stasiologic and rheologic blood parameters, the state of intestinal microflora, indicators of signs of immune inflammation will allow to improve the methods of antiretroviral treatment and prevention of ORS [7].

Over the last 10 years, there has been an increase in the incidence of chronic rhinosinusitis among the population [1]. Chronic polyposis rhinosinusitis (CRP) occupies a special position in the structure of this pathology. Long-term course of the pathological process in the nasal cavity and paranasal sinuses, high

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frequency of subclinical forms of the disease, recurrent growth of polyps contribute to the development of chronic hypoxia, pathology of the cardiovascular system, and a significant reduction in the quality of life of patients [8]. According to a number of observations, ORS occurs in all age groups. Annually, about 20 million patients seek medical care due to the debut or exacerbation of PDS [5].

Particularly severe MRS is noted in patients with various congenital or acquired pathologies of the bronchopulmonary system, as well as allergic reactions. Accession of infectious agents in the above group of patients contributes to the development of widespread lesions of the upper and lower respiratory tract, which creates significant difficulties in choosing the optimal tactics of patient management [4].

To date, corticosteroids are the main drugs for the treatment of MRS, because they can affect almost all known links of the pathogenesis of MRS. As a rule, preference is given to intranasal corticosteroids. Systemic corticosteroid therapy (SCT) is used in the treatment of ORS limitedly in the form of monotherapy or as part of combined regimens in severe and uncontrolled course of polyposis process and bronchial asthma. Limited prescription of corticosteroids is primarily due to the risk of developing a wide range of side effects [9]. In this regard, the validity of the use of SCT in ORS patients should be considered from two positions at once: objective justification of treatment efficacy in relation to standard approaches and reliable control of its safety [10].

However, in routine practice, as a rule, objective functional assessment of nasal breathing is not performed, and diagnosis is based on the analysis of changes in the main symptoms of the disease, the degree of spread of the polyposis process in the nasal cavity and paranasal sinuses according to the results of computed tomography and endoscopy data, which creates an incomplete picture of the patient's condition. It should also be noted that the reasons for "steroidophobia" is the lack of a unified diagnostic algorithm to monitor the safety of taking systemic corticosteroids [2

CONCLUSIONS: Thus, in order to improve the efficacy of ORS treatment and to realize a clear control over the safety of the conducted therapy, the development of complex therapeutic and diagnostic approaches is relevant.

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ANALYSIS OF THE MAIN RISK FACTORS IN PATIENTS WITH CHRONIC HEART FAILURE OF ISCHEMIC ETIOLOGY AND THEIR ADHERENCE TO TREATMENT

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Abstract:
Chronic heart failure of ischemic etiology is not only a medical but also a social problem due to its significant prevalence, high mortality rate and high costs of treatment of patients. Despite certain advances in the study of pathogenesis, clinic and treatment, this pathology still remains the most common, severe and prognostically unfavorable complication of all diseases of the cardiovascular system. The presence of several risk factors, low adherence to drug and non-drug treatment leads to the progression of CHF, deterioration of quality of life and increased frequency of hospitalizations.

Keywords: Chronic Heart Failure, Squeak Factors, Adherence, Quality of Life

Chronic heart failure (CHF) is a common complication of cardiovascular diseases, characterized by a high incidence of disability and an unfavorable prognosis. Despite achievements in the treatment of cardiovascular diseases, the level of complications and mortality among patients with CHF remains very high [1,3]. To date, CHF is one of the most common causes of morbidity and mortality in most countries of the world, as well as in Uzbekistan. In many economically developed countries, CHF affects approximately 2-3% of the population. Mortality from cardiovascular diseases in Central Asian republics exceeds the average European level by 2.7%, and in the age group under 65 years old, it is 4.6 times higher [3,6].

As a result of a 10-year observation, it was found that the prevalence of CHF in the population increases by an average of 1.2 people per 1,000 population per year, due to a higher susceptibility to CHF in men aged 40 to 59 and women aged 70 to 89 [3,8,9].

Patients' adherence to therapy plays an important role in the treatment of CHF. According to the WHO, low adherence to the treatment of chronic diseases is "a global problem of enormous significance" (WHO, 2003). Non-compliance with medical recommendations regarding medication intake and diet is the most frequent cause of decompensation in patients with CHF, leading to repeated hospitalizations with prolonged stays, and is associated with increased mortality [4,7].

Due to the high frequency of this pathology, poor prognosis (even with optimal treatment, annual mortality is 12%, and three-year mortality is 36%) and low quality of life, the search for predictors of unfavorable disease course and the identification of patients with a high risk of death remains a pressing issue. Identifying and timely elimination of manageable risk factors (RF), as well as increasing adherence to non-pharmacological and pharmacological treatment of patients with CHF, provides an opportunity to improve quality of life, reduce the frequency of hospital admissions, and extend patient life expectancy [1, 8, 9].

THE PURPOSE OF THE STUDY. To study the main risk factors for patients with CHF and their adherence to non-medicinal and medicinal treatment.

MATERIALS AND RESEARCH METHODS. The study included 60 patients with ischemic CHF, whose average age was 65.7±3.2 years, of whom 38 were men and 22 were women. The average duration of the disease was 3 years (1-5 years). Inclusion criteria: CHF of ischemic etiology, I-III stages (according to Vasilenko-Strajesko), III-IV functional classes (FC) (according to NYHA), coronary heart disease (CHD), post-infarction cardiosclerosis, combined coronary heart disease with hypertension and diabetes mellitus, who received inpatient treatment in the departments of cardiology and cardiac resuscitation of the 3rd clinic of the Tashkent Medical Academy. Exclusion criteria: CHF of another etiology. The diagnosis of CHF was established based on the National Recommendations ARSC (All-Russian Scientific Society of Cardiology) and SHFS (Society of Heart Failure Specialists) for the Diagnosis and Treatment of CHS (third revision). All patients included in the study underwent standard examination according to the above-mentioned recommendations, including the V. Yu. Mareev modified scale for assessing the clinical condition of CHF (CaReQoL CHF – Care-Related Quality of Life survey for Chronic Heart Failure), a 6-minute walk test (6MWT). In the hospital, all patients received the necessary medication (AAFI inhibitors, β-blockers, angiotensin II receptor antagonists, aldosterone receptor antagonists, diuretics, antiplatelet agents, anticoagulants, cardiac glycosides, if necessary,

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nitrates and antiarrhythmic drugs) treatment, depending on the patient's condition, the severity of CHF symptoms, background and concomitant diseases. They also received necessary recommendations for non-medicinal therapy.

Statistical analysis of the obtained data was conducted using the Student's t-test and the linear correlation method.

THE RESEARCH RESULTS AND THEIR DISCUSSION. Sixty patients with CHF were examined and specially prepared questionnaires were filled out. 100% of the patients suffered from CHD and 52 (87%) of them were diagnosed with hypertension. Of these patients, 49 (82%) had a single myocardial infarction, 11 (18%) had a double or multiple myocardial infarction. 7 (12%) patients had FC I of CHF, the rest had FC II-III. It was found that an increase in total cholesterol was observed in 52 (87%) patients, primarily due to LDL cholesterol. Four patients exhibited persistent atrial fibrillation according to ECG data, while 12 patients exhibited atrial and ventricular extrasystoles of class II and III according to Lawn. Echocardiography analysis revealed that most patients in both groups had elevated left atria (4.9 mm), left ventricle (4.4 mm median end-systolic size, 6.1 mm median end-diastolic size), and reduced ejection fraction (44.2%).

Table 1
Clinical characteristics of patients with chronic heart failure

Indicators	Number of patients, n=60
Age, years	65,7±3,2
Males	38 (63,3%)
Females	22 (36,7%)
Weighty heredity for CHD and hypertension	45 (75%)
Smoking	19 (31,7%)
Excessive consumption of salt, more than 5-6 g per day	28 (46,7%)
Alcohol abuse	4 (6,7%)
Total cholesterol >5,2 mmol/L	52 (87%)
Triglycerides >2,0 mmol/L	17 (23,8%)
LDL cholesterol >3,0 mmol/L	49 (81,7%)
HDL cholesterol <1,0 mmol/L	32 (53,3%)
Impaired glucose tolerance	11 (18,3%)
Body mass index, kg/m^2	32,4±2,1
Number of myocardial infarctions (times)	2,4
Manifestation duration of CHF, years	5,1±1,7
Angina pectoris, FC ФК II- III	60 (100%)
Hypertension, %	52 (87%)

Patient histories revealed that the average hospitalization rate per patient was 2.2 times per year, of which 73.2% were hospitalized in emergency hospitals with acute heart failure and exacerbation of CHF, and 26.8% were hospitalized on a planned basis.

The rules of balanced nutrition are general in nature and, as a rule, reduce to the rejection of salty, spicy and fatty dishes. Almost all patients did not follow a diet, which proves that 17 patients were overweight, 34 patients suffered from grade I-II obesity. It should be noted that during the examination of 60 patients, 1 to 7 RF were identified in each of them, with 2-3 RF - 12 patients, 4-5 - 27 and more - 5 - 21 patients. Some of the existing RF (smoking, excess body weight, hypodynamia, etc.) are preventable.

The frequently identified symptoms of CHF in patients are presented in Table 2.

Table 2
Clinical manifestations of chronic heart failure in the examined patients

Indicators	Number of patients, n=60
Increased fatigue (restriction of physical activity) during regular physical activity, which was previously easily tolerated	95,3%

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Depressive disorders	47,8%
Dyspnea after moderate physical exertion	68,4%
Dyspnea at rest	7,8
Tachycardia, also persisting for a long time after exercise	72,4%
Weakness	74,8%,
Anxiety	49%
Hand and foot dryness and coldness	61,5%
The appearance of acrocyanosis – the blue of the toes of the hands and feet, the ears and nose	67,2%
Dry cough during physical exertion and in a horizontal position	16,3%
Heaviness and pain in the right hypochondrium	57,3%
Swelling	82,1%

Almost 90% of patients did not have sufficient information about the primary and secondary prevention of the underlying disease and CHF. Those with higher functional classes of CHF received periodic inpatient treatment (2-3 or more times a year). In outpatient settings, 67% of patients received furosemide, 26.3% - AAFI, 28% - angiotensin II receptor antagonists, 18.4% - verospiron 25-100 mg daily, 17.4% - digoxin. However, these drugs were taken irregularly and inadequately. The general practitioner's control was irregular. After discharge from the hospital, after 1-1.5 months, 47 patients independently reduced the dosage and quantity of the recommended drugs or stopped their use altogether.

During the survey, the reasons for the irregular use of medications were revealed: 14 (23.3%) patients were unable to purchase the necessary medications due to their low financial capabilities, 27 (45%) patients believed that regular medication use was harmful to the body, 9 (5.4%) patients forgot to take medications, 7 (11.7%) thought that it was enough to receive inpatient treatment 2-3 times a year. Only 9 out of 60 patients followed all the doctor's recommendations.

Taking into account the above, it can be said that adherence to the doctor's recommendations regarding diet, lifestyle in combination with adequate medication therapy improves the quality of life, the clinical condition of patients, reduces the frequency of CHF progression and the number of hospitalizations.

FINDINGS

1. Most patients with ischemic CHF do not have sufficient information about the primary and secondary prevention of the underlying disease and CHF.
2. The presence of several risk factors and low adherence to medication and non-medication treatment leads to the progression of CHF, a deterioration in quality of life, and an increase in hospitalization rates.
3. Treatment outcomes and disease outcomes in patients with CHF depend on patients' adherence to treatment. Therefore, to improve the quality of therapy, it is necessary to identify the causes of poor adherence in each patient and correct them taking into account the underlying disease.
4. By observing and identifying the features of the disorder, it is possible to increase the adherence of patients with CHF to medication and non-medication treatment.

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MODERN PROBLEMS OF THE INFLUENCE OF ENTERPRISES PRODUCING POLYMER PRODUCTS ON HUMAN HEALTH AND THE ENVIRONMENT (Literature review)

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Abstract:

Today, the increasing demand for polymer products not only in our country but also worldwide, as well as developing and improving ways to reduce the impact of harmful chemical substances in their composition on human health and the environment, remains one of the pressing issues facing specialists in the field of preventive medicine.
The article examines the experiences of foreign countries focused on the problems of various factors affecting human health and the environment in the production of polymer products.

Keywords: chemical factor, workplace air quality, health status, risk factors, prevention

During our research, we studied a total of 27 articles related to the field, available in the e-library scientific library, Google Scholar scientific publications search system, and international databases such as Cyberleninka, Web of Science, PubMed, Medline, and Scopus, to examine the current pressing issues of the impact of polymer product manufacturing enterprises on human health and the environment.
Certainly, in accordance with modern demands, the number of enterprises engaged in the production of polymer products used in various sectors of the national economy is increasing daily. This necessitates increasing the effectiveness of preventive measures aimed at reducing the impact of harmful factors on the health of workers employed in these production workshops, as well as on the environment, while also addressing the growing number of manufacturing enterprises and the hazardous factors characterizing their production conditions.

RESEARCH METHODS. Data analysis was conducted using the e-library scientific library of literature, the Google Scolar scientific publication search engine, and international databases such as Cyberleninka, Web of Science, PubMed, Medline, and Scopus.

RESULTS:

The chemical factor is the leading determinant of working conditions in polymer material production. The complex of harmful substances entering the air of the working area includes chemicals used as raw materials for obtaining intermediate and final products. The impact of harmful substances on workers' bodies is combined or intermittent. In several workplaces at polymer production enterprises, the combined influence of high-temperature harmful substances, noise intensity, work difficulty, and other risk factors on workers' health status and functional indicators has been assessed [3, 21].
The principle of obtaining polymers is based on the polycondensation reaction of polyester isocyanates with the formation of urethane bonds in the presence of water, catalyst, foaming agents, emulsifiers, and a whole range of targeted additives (plasticizer, flame retardant, dye, stabilizer, etc.). The initial raw material is presented as a 2-3 component system, with component A being a mixture of polyethers with various targeted additives; component B - isocyanates or their mixture; component C comes separately in the form of a catalyst, which can be mixed with component A under production conditions. A number of large manufacturing enterprises mix the starting materials according to the formulation and prepare it themselves [9]. Component C comes separately in the form of a catalyst, which can be mixed with component A in production conditions. A number of large manufacturing enterprises mix the starting materials according to the recipe and prepare it themselves [9].
The possibility of developing changes in the health status of a particular worker is largely determined by

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the individual sensitivity of their organism to a particular production environment.

The importance of considering issues of adaptability in the bodies of workers engaged in polymer product production as a whole, compensatory-adaptive mechanisms, the emergence of predisposition to the development of production-related or other pathologies, and the connection with the growth of this production, is undoubtedly relevant. Conducting research in this area can be useful in developing predictions of individual risk for occupational disease development and selecting prevention measures and methods [4, 11, 10].

However, most of them are poisonous, easily combustible, and some (for example, epoxy resins) release toxic substances when heated above 60°C. Therefore, work with polymeric materials is carried out in separate production facilities with a relative humidity of no more than 70% and an air temperature of no lower than 15°C. The walls of the room should be smooth and covered with decorative tiles at a height of at least 2 meters from the floor. Such rooms are provided with local suction, inlet-outlet ventilation, providing an amount of air exchange not less than 8...10 times per hour. It is considered necessary to install airtight cabinets here for storing artificial resins, adhesives, etc.

Work with polymer materials is permitted to persons under the age of 18 (except for women), who have passed the entry and primary occupational safety instruction at the workplace and are recognized by the medical commission as suitable for this type of work. Employees are obliged to wear special clothing and other personal protective equipment established for them according to the norm.

It is necessary to cover the working areas where the composition of polymer materials is made with paper, and after the work is completed, it must be burned. In the technological process, the use of dust-like capron with a particle size less than 0.1 mm is prohibited due to its explosive potential. It is forbidden to store polymeric materials in the vicinity of heating devices, drying chambers, and electric motors when they need to be ventilated and stored in a separate room. It has been shown that polymer composites should only be prepared, heated, and evaporated in suction cupboards, the doors of which can be opened 5 minutes after firing [18, 23].

To prevent the harmful effects of epoxy waxes, hardeners, and other substances, hands are pre-impregnated with liquid ointment (based on basiline or lanolin) and periodically (every two hours of work) washed with hot soap water for the protective layer as needed. An epoxy-containing substance is applied to the repaired part without touching it using a special tool (spatel or shovel). To remove leaks and excess epoxy wax from the parts, it is removed with paper, moistened with acetone or other solvents used for these purposes, and then with a cloth. When the epoxy enters the wax skin, it is rubbed off with a dry tampon with a soft cloth, then with a tampon moistened with acetone, after which the hands are washed in soapy water.

When hardeners come into contact with skin on the hands, they must be washed off with soap and hot water, and the area should be wiped with a soapy paste. Smoking and eating are prohibited while working with epoxy resin and other polymer compositions. Scientific sources mention the use of solvents (dichloroethane, carbon tetrachloride, etc.) for degreasing newly manufactured and repaired parts before applying polymer coatings [12].

According to several authors, recommending and expanding automation in the production process allows for proper equipment selection, significantly increased labor productivity, ensuring consistent product quality, expanding the product range, and reducing the impact of negative factors affecting worker safety [13, 22].

In their research, American scientists Wallace MA, Kormos TM, and Pleil JD (2016) demonstrated the role of blood-borne biomarkers and bioindicators in the science of preventing environmental impacts on health to coordinate health effects. Environmental hygiene science focuses on identifying sources of environmental pollution with adverse health effects and developing effective intervention strategies to reduce long-term disease risk. Over the past few decades, the World Health Organization has recognized that health risks are linked to interactions between the environment and the human genome. With the sequencing of the human genome, similar efforts are now required to establish this "G × E" (gene-environment) interaction and to unravel human exposomes, which consist of the accumulation of metabolic reactions and environmental influences throughout a person's lifetime. Exposomes comprise endogenous and exogenous chemicals, most of which are measured as biomarkers in blood, breath, and urine. The impact of pollutants is assessed by analyzing the biological fluid for the pollutant itself or its metabolic products. New methods are being developed to use numerous biomarkers, known as bioindicators, to demonstrate biological changes that may have adverse health effects in the future. Typically, environmental biomarkers are assessed using non-invasive (excreted) media, such as breath and urine [9, 19, 30].

Although blood is considered the most suitable biological fluid for analysis and forms a central compartment that interacts with every living cell, it is often not used for biomonitoring in most cases due to practical reasons such as concerns about infectious diseases, waste management, or clinical conditions. The objective of this study is to review the current use of blood samples in environmental health research,

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provide a brief comparison of blood with other biological matrices, and propose additional recommendations for blood analysis in studying its impact on the human body [26, 27].

Today, large-scale expansion of production abroad and in our country leads to an increase in the number of enterprises in the heavy and light industries (mining and metallurgy, chemical industry, oil refining, glass, automotive industry, yarn manufacturing, cotton growing, textile, footwear and polymer products) and a number of measures are being taken to create optimal working conditions for workers working in them and reduce morbidity [1, 2, 14]. At the same time, the occupational exposure to industrial chemicals is a serious potential health problem and can lead to chronic occupational liver disease. Although the disease initially goes without symptoms, occupational liver disease can progress to cirrhosis, liver cancer, and death. Some chemicals in production, such as vinyl chloride and its use, are constantly associated with occupational liver diseases such as hepatic hemangiosarcoma.

Occupational exposure to industrial chemicals can lead to chronic occupational liver diseases, which are potentially a serious health problem [5, 11, 29].

The purpose of this study is to measure the concentration of gaseous and solid pollutants arising from additive production operations and after processes in production conditions when plastics are used as starting materials. The secondary goal is to propose means to reduce the impact of pollutants released during additive production processes and to assess the concentration level based on target indicators and proposed limits of action. The volatile organic compounds were analyzed using a thermodesorption gas chromatographic-mass spectrometric instrument obtained using the Tenax TA adsorption device. Carbonyl compounds were obtained using DNPH-Silica cartridges, analyzed using a highly efficient liquid chromatography device, particles were measured using the P-Trak instrument, and samples were taken using the IAQ-Calc instrument to determine air quality in the room. The concentration of dust mass was simultaneously measured using DustTrak DRX and IOM-sampling devices. At the stage of preparing the plastics for heat treatment, the dust concentration was the highest (2070-81890 m/cm3). Conversely, the total concentration of volatile organic compounds is low (113-317 μg/m) in dust photopolymerization and preparation by such methods. However, the total concentration of volatile organic compounds was higher in the casting materials, possibly due to the sputtering of the material and the binding agent (1114-2496 μg/m), where part of the spray may be aerosol. Formaldehyde is a filler for a number of other carbonyl compounds, and it was found in low concentrations (3-40 μg/m3) in all methods, with the exception of the material processing method. A significant dust concentration (1.4-9.1 mg/m3) was detected only after multi-current synthesis and processing of objects made from a powdered layer. It has been proven that adverse health outcomes associated with additive production can occur among affected workers, depending on the levels of pollution measurements [6; 20, 29].

From a practical standpoint, the association of certain chemicals with occupational liver diseases is so strong that programs for limiting their impact and medical monitoring are sanctioned by the International Labour Organization (ILO) Office for Occupational Hygiene and Safety. According to him, he established the standard for vinyl chloride (ILO). It is recommended to determine the chemical substances of the liver (bilirubin, alkaline phosphatase, aspartate aminotransferase or AST, alanine aminotransferase or ALT and gamma-glutamyltransferase) in workers of a plant producing vinyl chloride or polyvinyl chloride exposed for more than 10 years for six months. Unfortunately, these liver tests are often the norm, even in cases of chronic occupational liver disease. Therefore, the probability of professional hepatotoxicity was insufficiently recognized even among workers included in the medical observation program, specifically for liver diseases [16, 24].

According to the authors, workers are exposed to chemicals, which are chemicals that affect the breast carcinogens and endocrine system, and the working environment is heavily polluted with dust and steam. It follows from this that there is a high load on the body of workers working at polymer enterprises, which is significantly higher than the load that can be found in the public. The description of such effects in the polymer industry places women at a disproportionate risk, emphasizing their gender. Measures are being discussed to address these impacts and the need to make regulatory decisions [15, 28, 31].

The results of the study allowed us to determine that professional risk in representatives of the main professions of large-scale production (operators and processors) belongs to class 3.2 of working conditions, belongs to the average risk category, and indicates the need for further improvement of the system of preventive measures. Working conditions in small-scale production are characterized by the presence of most manual labor operations and correspond to the intolerable class 3.3, occupational hazard category. To reduce the risk to the health of workers in this type of production, it is possible to develop regulatory legal documents and increase the employer's responsibility for ensuring the safety of working conditions [1, 14, 25]. Therefore, working conditions in the modern polymer industry are characterized by the influence of a number of harmful occupational factors on the workers' bodies. The impact of harmful working conditions serves as the

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basis for increasing the risk of developing and increasing the harmfulness of endocrine, respiratory, nervous, and musculoskeletal diseases in workers in the PPU industry. A number of studies have shown that the number of pathologies reliably increases with an increase in the work experience of workers, with the presence of an etiological contribution of professional factors [15, 17].

Discussion. During the study of scientific data from open international scientific sources, the leading factor in the impact of chemical substances in the form of gas-vapor on the health of workers at enterprises producing polymer products is the high association of chemical substances with the origin of occupational liver diseases, it is recommended to determine the effect of formaldehyde, vinyl chloride or polyvinyl chloride chemical substances on liver enzymes (bilirubin, alkaline phosphatase, aspartate aminotransferase or AST, alanine aminotransferase and gamma-glutamyltransferase or

It has been established that the development of the polymer production industry plays a significant role in optimizing working conditions at enterprises, modernizing workplaces, and reducing chemical hazard factors in the form of dust and gases in the environment, as well as protecting workers' health.

CONCLUSION. An analysis of existing scientific sources shows that today, not only in our country, but also in developed countries around the world, the development of the polymer industry requires the development of technical, technological, and sanitary-hygienic measures aimed at optimizing working conditions at enterprises, modernizing workplaces, reducing risk factors, effectively using personal protective equipment, and preventing occupational diseases.

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ON THE BASIS OF 3D ANATOMICAL MEASUREMENT OF ZYGOMATIC BONE FRACTURE TO DETERMINE SAFE POINTS FOR FIXATION OF BONE FRAGMENTS WITH THE HELP OF MINI PLATES AND TO PREVENT DAMAGE TO THE SUBORBITAL NERVE

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Abstract:

A jaw fracture, like other fractures, is a severe injury requiring immediate treatment. The fracture violates the integrity of not only the bone, but also the surrounding tissues, blood vessels, muscle structures and nerves. In addition, a jaw fracture is often accompanied by displacement of bone structures and fragments, which entails serious consequences in case of late initiation of treatment. The proximity of the location to the brain and the large number of blood vessels in this area makes this type of injury life-threatening.

Keywords: zygomatic bone, bone fragments,mini plates, suborbital nerve

INTRODUCTION: A fracture of the zygomatic arch requires an individual type of treatment for each patient, different methods can be combined, according to the decision of the doctor. The first thing to do before visiting the clinic is to provide first aid. Cool the damaged area with ice, immobilize the jaw using bandages or cloth and provide rest to the victim. It is forbidden to try to extract the debris yourself, provoke the movement of the jaws, and take food. It is also not recommended to take painkillers on your own.

An analysis of the literature data shows that the diagnosis and treatment of injuries, complications and consequences of combined injuries to the bones of the facial skeleton (STCLS) is one of the growing medical and social problems in all countries. This is determined by a constant increase in the level of maxillofacial injuries and an increase in the severity of maxillofacial injuries and combined injuries. Fractures of the zygomatic bones and arches on average account for 7% to 19.4% of the total number of patients with facial bone injuries.

The injury of the zygomatic bone has a diverse clinical picture, since this area of the face has a complex bone structure, their damage causes a wave-like course of traumatic disease with various local symptoms of clinical manifestations.

Trauma of the middle zone is one of the most difficult problems of maxillofacial surgery. In recent decades, the structure of the injury has changed radically, and simultaneous damage to several anatomical structures has been noted. Trauma to the bones of the facial skeleton (STCLS) has recently been associated with combined injuries and this injury has increased 1.5 times, among severe injuries and ranges from 34.8 to 63.3%. The increase in the number of post-traumatic inflammatory complications makes this problem urgent. The causes of traumatic fractures of the zygomatic arch and bones can be household, sports, transport, street and industrial injuries. The degree of displacement of the fragments of the zygomatic bone can be different: having cosmetic significance (facial asymmetry); having cosmetic and functional significance (facial asymmetry, accompanied by occlusion of the eyeball, diplopia, restriction of mouth opening, violation of innervation in the area of the suborbital nerve). Therefore, in some cases, it is possible to detect a combination of a number of more or less pronounced pain, cosmetic and functional symptoms.

Patients with fractures of the zygomatic–orbital complex need timely and qualified surgical care, since not timely immobilization of mixed fragments will lead to obvious deformations of the maxillofacial region, which requires further reconstructive surgery, leading to temporary disability of patients of working age.

Thus, based on the above, this problem requires a new approach to the treatment of patients with this pathology.

THE PURPOSE OF THE STUDY: On the basis of 3D anatomical measurement of a zygomatic fracture, to determine safe points for fixation of bone fragments using mini plates and to prevent damage to the suborbital nerve.

RESEARCH MATERIALS AND METHODS: Patients with zygomatic fractures treated at the department of

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maxillofacial surgery of the city medical Association of Samarkand in the period from 2023 to 2024 were examined. The age of the patients ranged from 21 to 57 years, of which 13 were men (81.2%), 3 were women (18.8%).

We performed computed tomography (CT) of the bones of the facial skeleton in all patients with 3D measurements using electronic sources. CT examination made it possible to assess the topography and directions of the suborbital canal, the suborbital nerve and the vessel. A fracture of the zygomatic bone in many cases (67%) is accompanied by a fracture of the orbital complex and with the walls of the maxillary sinus. The fracture line of the zygomatic bone often passes in the area of the opening where the suborbital nerve and vessels exit, which causes compression of this nerve. Displacement of bone fragments, which is an indication for open osteosynthesis of bone fragments. Displacement occurs due to the severity of bone fragments in fractures of the zygomatic orbital complex. Therefore, surgeons often resort to an open method of osteosynthesis of bone fragments. The modern method of fixing bone fragments is the use of mini-plates. Often, when fixing mini plates, jaw surgeons install them approximately. Before the surgical period, we studied the topography and anatomical structure of the zygomatic fracture. CT scans of patients with fractures of the zygomatic orbital complex who installed mini-plates were studied. The topography of the suborbital canal was studied, the distances from the lower edge of the orbit to the base of the suborbital foramen and the distance from the zygomatic bone to the base of the suborbital foramen were measured.

RESULTS: The treatment of patients with injuries of the middle zone of the face had its own characteristics. The task of a surgeon who performs osteosynthesis with mini-plates is to preserve the integrity of anatomical structures, the subclavian nerve, and the vessel and restore the bone structure. The middle zone of the facial skeleton has a very complex structure, it is a complex biological intersection where the beginning of vital organs is located. This area of the facial skeleton resembles a bone mosaic, so the trauma of this area is very difficult. From this point of view, in case of injury to the middle zone of the face, simultaneous medical care is required by different specialists (maxillofacial surgeon, otorhinolaryngologist, ophthalmologist, intensive care specialist).

Treatment of trauma of the middle zone has a diverse clinical picture, since the middle zone of the face has a complex bone structure, their damage causes a wave-like course of traumatic disease with various local symptoms of clinical manifestations. Patients with fractures of the upper jaw underwent bimaxillary splinting of the jaws, manual reposition with fixation using rubber rings. After that, an individual parietal-chin cap was prepared and put on. Patients who were in serious condition hospitalized in the intensive care unit for resuscitation, after improving their general condition, i.e. restoring adequate breathing, bimaxillary splints were applied. Patients who had dislocations of bone fragments were repositioned and fixed using mini plates under general intubation anesthesia. Mini-plates were applied to the zygomatic alveolar ridge, the zygomatic maxillary suture and the zygomatic suture.

Concomitant fracture of the upper jaw according to Le FAURE 1,2,3, in 6 (37.5%) concomitant fracture of the zygomatic bone, fracture of the anterior wall of the maxillary sinus, in 8 (62.5%) patients there was a concomitant fracture of the zygomatic arch, accompanied by trauma to the soft tissues of the maxillofacial region.

Based on the study of the 3D anatomy of the injury of the zygomatic orbital complex, it was revealed that the distance from the lower edge of the orbit to the base of the suborbital foramen was 9.4 ±1.2mm, the distance from the zygomatic bone to the base of the suborbital foramen was 13.2±1.1mm.

CONCLUSION: Thus, the 3D anatomy of the injury of the zygomatic orbital complex allows us to conclude that, taking into account the study of anatomical measurements of the installation of mini-plates, fragments ensure that the subclavian nerve is not damaged and prevents various complications in the postoperative period.The use of timely complex drug therapy in patients with STCLS in the middle zone of damage makes it possible to correct the violation of cellular and humoral factors of immunity, and is a way to prevent complications.

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PARASITE WORM.

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Abstract:

Parasite worms are a significant concern in global health, particularly in tropical and subtropical regions. This article examines the various types of parasitic worms, their effects on human health, and the methods used to control them. The analysis is based on current scientific literature, highlighting both the biological characteristics of these parasites and the social implications of infections. Various diagnostic, preventive, and treatment methods are discussed, concluding with recommendations for future research and public health strategies.

Keywords: Parasite worms, helminths, infections, health, control methods, diagnosis, prevention, treatment, public health.

Parasitic worms, also known as helminths, are organisms that live and feed on hosts, causing harm in the process. These worms include roundworms (nematodes), flatworms (trematodes), and tapeworms (cestodes), and they are responsible for a range of health issues, especially in regions with poor sanitation. Helminth infections lead to malnutrition, anemia, and impaired cognitive development, primarily affecting vulnerable populations such as children. Understanding the life cycles, transmission pathways, and impacts of these parasites is essential to developing effective prevention and control strategies.

The article utilized a review-based approach, examining existing literature from databases such as PubMed, Scopus, and Google Scholar. Research papers focusing on the epidemiology, diagnosis, prevention, and treatment of parasitic worms were selected. Quantitative data were extracted from these sources to provide a comparative analysis of infection rates and the effectiveness of various control measures. This method allowed for a broad overview of the current state of knowledge, while also identifying gaps in research that need to be addressed.

Parasite worms (also known as helminths) are organisms that live and feed on a host organism, often causing harm to their host. They can infect humans and animals, and there are three main types:

Flatworms (Platyhelminthes): These include tapeworms and flukes. Tapeworms can grow inside the intestines of humans and animals, absorbing nutrients from the host.

Flatworms, or Platyhelminthes, are a diverse group of invertebrates known for their flat, soft bodies. They can be found in various environments, including marine, freshwater, and terrestrial habitats. Here are some key points about flatworms:

Characteristics

- Body Structure: Flatworms have a flattened body shape, which allows for a high surface area-to-volume ratio, aiding in gas exchange and nutrient absorption.
- Symmetry: They exhibit bilateral symmetry, meaning their body can be divided into mirror-image halves.
- Tissue Layers: Flatworms have three tissue layers: ectoderm, mesoderm, and endoderm, making them triploblastic.

Types of Flatworms

Tapeworms (Cestoda):

- Habitat: Primarily found in the intestines of vertebrates.
- Feeding: They absorb nutrients directly through their skin, as they lack a digestive system.
- Structure: Tapeworms have a head (scolex) with hooks and suckers to attach to the host's intestinal wall and a long body made up of segments called proglottids.

Flukes (Trematoda):

- Habitat: Can live in various organs of their hosts, including the liver, lungs, and blood.
- Lifecycle: Many flukes have complex life cycles that involve intermediate hosts, often snails or fish.

Reproduction

- Asexual and Sexual Reproduction: Many flatworms can reproduce both sexually and asexually. For instance, they can regenerate lost body parts and some species can split into two to form new individuals.

Impact on Hosts

- Parasites: Many flatworms are parasitic, causing diseases in humans and animals. For example,

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tapeworm infections can lead to malnutrition, while flukes can cause serious conditions like schistosomiasis.

Importance

- Ecological Role: Flatworms play a significant role in ecosystems as both predators and prey. They are also used in scientific research due to their regenerative abilities.

Summary

Flatworms are a fascinating group of organisms with unique adaptations that allow them to thrive in various environments. Their parasitic forms can have significant impacts on human health and animal welfare.

Roundworms (Nematodes): These include species such as Ascaris, hookworms, and pinworms. They can infect various parts of the body, from the intestines to the lungs.

Roundworms, also known as nematodes, are a diverse group of worms characterized by their elongated, cylindrical bodies. Here□s some information about them in the context of the English language:

Common Species:

- Ascaris lumbricoides: A large intestinal roundworm that can cause ascariasis, leading to malnutrition and intestinal blockage.
- Hookworms: These parasites attach to the intestinal wall and can cause anemia and protein deficiency. Common types include Ancylostoma duodenale and Necator americanus.
- Pinworms (Enterobius vermicularis): Commonly infecting children, these worms cause itching around the anus, leading to discomfort and sleep disturbances.

Infection and Transmission:

- Roundworms can infect humans through contaminated food, water, or soil. They may also be transmitted via skin contact with contaminated surfaces (as with hookworms).

Symptoms:

- Symptoms of roundworm infections vary depending on the species and can include abdominal pain, diarrhea, fatigue, and weight loss. In severe cases, they can lead to more serious health issues, such as respiratory problems or anemia.

Prevention and Treatment:

- Good hygiene practices, such as washing hands and cooking food thoroughly, can help prevent infections. Treatments often involve antiparasitic medications, such as mebendazole or albendazole.

Relevance in Language and Culture:

- The study of nematodes has contributed to scientific terminology, influencing fields such as biology, medicine, and agriculture. The English language has adopted many terms from these studies, making it easier to communicate complex ideas about parasitology and human health.

Thorny-headed worms (Acanthocephalans): These are less common in humans but can affect various animals. They use their spiny heads to attach to the intestinal wall of the host.

Thorny-headed worms, or Acanthocephalans, are a group of parasitic worms that primarily infect the intestines of various vertebrates, including fish, birds, and mammals. Here are some key points about them:

Structure: Acanthocephalans are characterized by their spiny, thorn-like heads, which they use to anchor themselves to the intestinal wall of their host. This adaptation allows them to resist peristaltic movements and maintain their position within the gut.

Life Cycle: These parasites typically have complex life cycles involving multiple hosts. They often start as eggs, which are ingested by intermediate hosts (such as insects or crustaceans). The larvae develop within these hosts before being transmitted to definitive hosts (such as mammals) when the intermediate hosts are consumed.

Host Effects: Infected hosts may experience various health issues, including malnutrition, inflammation, and damage to the intestinal lining. Symptoms can vary depending on the species and the extent of the infection.

Infection in Humans: While Acanthocephalans are primarily found in non-human hosts, there have been rare cases of human infections, often associated with the consumption of undercooked or contaminated meat or fish.

Prevention and Control: Preventing Acanthocephalan infections involves proper cooking of food, maintaining good hygiene, and controlling the populations of intermediate hosts.

Overall, thorny-headed worms are an interesting group of parasites with unique adaptations and life cycles, although they are not common in humans.

Parasite worms are often transmitted through contaminated food, water, or soil, or through contact with infected animals. Infections by parasitic worms can lead to health problems such as malnutrition, weakness, and organ damage, depending on the type and severity of the infection.

Treatment for parasitic worms often involves medication (anthelmintics), which kills or expels the worms from the body. Preventive measures include proper sanitation, hygiene, and careful preparation of food and drinking water.

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The findings of this review underscore the need for integrated control measures that combine drug administration with improvements in sanitation, education, and public health infrastructure. While MDA has been successful in reducing the burden of infection, it is not a long-term solution without addressing the root causes of transmission. The role of community-based interventions, such as promoting hygiene education and improving water supply, cannot be overstated. Additionally, advancements in genetic research may pave the way for more targeted therapies and vaccines in the future.

CONCLUSIONS

In conclusion, parasitic worms continue to be a challenge to global health, particularly in developing countries. The most effective strategy to combat these infections involves a combination of medical treatments, improved hygiene, and public health education. Future research should focus on vaccine development, more effective diagnostic tools, and sustainable sanitation practices. Governments and international organizations need to prioritize funding and policy interventions to address this issue comprehensively.

Suggestions:

- Increase funding for research on vaccines and novel anthelmintics.
- Strengthen public health campaigns that promote hygiene and sanitation practices.
- Implement sustainable, long-term sanitation infrastructure in affected regions.
- Foster international collaboration to address parasitic worm infections on a global scale.

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TO STUDY MODERN APPROACHES TO THE DEVELOPMENT OF PRIMARY EDUCATION, TO INCREASE THE EFFECTIVENESS OF EDUCATION

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Abstract:
The landscape of elementary education is rapidly evolving due to technological advances, changes in pedagogical practices, and an increasing focus on personalized learning. This research paper examines contemporary approaches to elementary education, focusing on innovative strategies such as personalized learning, inclusive practices, STEAM education, and digital literacy. By reviewing these approaches, this article aims to illuminate how educators can adapt to meet the diverse needs of today's students and create a dynamic and engaging learning environment.

Keywords: Digital literacy, elementary education, technology, STEAM, Inclusive practice, Personalized education.

INTRODUCTION:

In the digital age, the traditional model of primary education is undergoing changes to meet the demands of a rapidly changing world. Contemporary approaches to elementary education emphasize student-centered learning, interdisciplinary learning, and technology integration to prepare students for success in the 21st century. This article explores several contemporary approaches that are reshaping the primary education system and improving learning outcomes for students.

Personalized Education:

Personalized learning adapts learning to the individual needs and interests of each student, enabling differentiated instruction and independent learning. By using technology and data-driven insights, educators can create personalized learning pathways that match students' unique learning styles and abilities, supporting greater engagement and academic achievement. powers up.

Inclusive Practices:

Inclusive education practices aim to create a learning environment that embraces diversity and meets the needs of all students, including those with disabilities or special education needs. By promoting a culture of inclusion, educators can ensure equity and access to quality education for every student, regardless of background or ability.

STEAM Education:

STEAM education integrates science, technology, engineering, art, and mathematics to develop students' creativity, critical thinking, and problem-solving skills. By incorporating hands-on, project-based learning experiences, STEAM education prepares students for future careers in fields that require interdisciplinary knowledge and innovative thinking.

Digital Literacy:

Digital literacy is essential in today's interconnected world where technology plays a central role in everyday life. By teaching students how to manage, evaluate, and create digital content responsibly, educators empower them to become knowledgeable and ethical users of technology and prepare them for success in the digital age.

In today's landscape, digital literacy is a key skill for students navigating an increasingly technology-driven world. The ability to use, understand, and critically evaluate digital tools and information effectively is essential for success in academics, careers, and everyday life. By integrating digital literacy education into the curriculum, educators can equip elementary students with the skills necessary to act responsibly and ethically in the digital realm, preparing them for the challenges and opportunities of the digital age.

The importance of digital literacy in primary education

1. Navigating Digital Tools: Digital literacy enables students to effectively navigate most digital tools and platforms. From basic computer skills to using online resources for research and learning, a digital literacy qualification enables students to use technology for educational and personal growth.

2. Evaluating Digital Content: In an age of information overload, the ability to critically evaluate digital content is critical. Teaching students to identify reliable sources, fact-check information, and identify misinformation and disinformation will develop critical thinking and information literacy skills online.

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3. Create digital content responsibly: Digital literacy also includes the skills needed to create and share digital content responsibly. From understanding the principles of copyright and fair use to practicing online etiquette and cybersecurity, students learn to be ethical and respectful digital citizens in their online interactions.

Strategies for developing digital literacy in primary education

1. Integrated Curriculum: Incorporating digital literacy skills across a variety of subjects and activities in the curriculum ensures that students develop a holistic understanding of digital tools and concepts. Projects involving technology, digital research tasks, and multimedia presentations provide hands-on learning opportunities.

2. Critical Thinking Exercises: Engaging students in activities that require them to evaluate online sources, analyze digital content, and identify reliable information can help develop their critical thinking skills. Encouraging discussions about digital ethics and responsible online behavior encourages students to think about their digital interactions.

3. Cyber Safety Education: Educating students about online safety practices such as protecting personal information, recognizing phishing attempts, and understanding the consequences of cyberbullying is essential to creating a safe and secure online environment for students.

The impact of digital literacy on student achievement

By equipping elementary students with digital literacy skills, teachers empower them to:

- Effectively engage with digital tools for learning and collaboration.
- Navigate the complexities of the digital landscape with confidence and insight.
- Create and share digital content responsibly and ethically.
- Develop critical thinking skills to evaluate information on the Internet and make informed decisions.

Summary:

Modern approaches to elementary education are reshaping the way students learn and engage with the curriculum. Through the use of personalized learning, inclusive practices, STEAM education, and digital literacy, educators can create a dynamic and student-centered learning environment that fosters creativity, critical thinking, and lifelong learning skills. As elementary education continues to evolve, educators must adapt and innovate to meet the diverse needs of today's students and prepare them for a future full of opportunities and challenges.

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STUDY OF THE MICROFLORA AND PH OF THE SKIN ENVIRONMENT IN PATIENTS WITH ZOOANTHROPONOTIC TRICHOPHYTOSIS OF THE PUBIC REGION.

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Abstract:
The article describes the Study of the microflora and pH of the skin environment in patients with zooanthroponotic trichophytosis.

Keywords: Zoo anthroponotic trichophytes and features of microbiology.

THE RELEVANCE OF THE WORK. Serious ecological changes taking place on the planet in recent decades could not but affect the state of microecology and immunoreactivity of modern man. This is one of the global reasons for the increase in the number of fungal diseases. In addition, outbreaks of zooanthroponotic dermatomycosis are also caused by a change in the properties of the pathogens themselves - the emergence of new strains of fungi, an increase in their pathogenicity and contagiousness, a violation of the structure and boundaries of nosoareals. It should be noted that today in Uzbekistan, favus has been eliminated almost everywhere, and the incidence of anthroponotic dermatomycosis has been sharply reduced. At the same time, zooanthroponotic trichophytosis has a wide and widespread distribution throughout the territory of the Republic.

Zooanthroponotic trichophytosis is a natural focal infection, the epidemic features and the frequency of outbreaks of which depend on geographical, environmental and a number of other factors **[1].** In modern conditions, trichophytosis in the Republic of Uzbekistan has a number of characteristic features: the species composition of pathogens has changed (the main pathogen is trichophyton faviform, whose share in the total structure of trichophytosis pathogens is 80-85%). The age composition of patients also changed (at the end of the 90s, 86% of patients with trichophytosis were children of preschool and primary school age, and by 2003, 61% of patients were over 15 years old), atypical localizations of trichophytosis lesions appeared, including the pubic area, genitals, buttocks **[1,3].**

Since 2002, registration of patients with zooanthroponotic trichophytosis with localization of the process in the genital area has begun. In all regions of the Republic, cases of registration of zooanthroponotic trichophytosis among the adult population with a predominant lesion of the pubic and inguinal region have become more frequent, and the vast majority of patients indicate the sexual route of infection. There is a direct relationship between the frequency of infection with sexually transmitted infections (STIs) and the occurrence of pubic trichophytosis. Given the steady increase in the number of STIs and the complications they cause, we should expect an outbreak of morbidity and pubic trichophytosis.

In this connection, knowledge of the distribution features, conditions of clinical manifestation and characteristics of the pathogen, the development of adequate methods of treatment will allow influencing the main links of the epidemic process.

The degree of knowledge of the problem. Despite ongoing measures to prevent fungal diseases of the skin around the world, there is an increase in infection with this infection. Thus, in the Republic of Kazakhstan, the incidence of fungal infections of the skin in recent years has increased from 3756 cases in 1999 to 5401 cases in 2003 with a predominant lesion of the urban (2412 people) and male (3310 people) population **[1].** The study of the incidence of zooanthroponotic trichophytosis in different regions of the CIS made it possible to find out that against the background of a significant decrease in the total number of patients with fungal diseases, it remains at a fairly high level, amounting to 95% in rural areas. **[1,2]**

In the Republic of Uzbekistan, there is also a widespread increase in the incidence of zooanthroponotic trichophytosis. Since a dry, hot climate prevails on the territory of Uzbekistan, the highest incidence of trichophytosis occurs in the summer period of the year. This is due to the fact that skin moist from excess sweat, often macerated stratum corneum of the epidermis, a shift in the pH of the skin and sweat towards an alkaline reaction contributes to the penetration of pathogens into the

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skin and the development of fungal infections in it **[1,5].**

Currently, zooanthroponotic trichophytosis is characterized by a pronounced clinical diversity. The pathogenesis of the development of clinical forms of mycosis can be influenced by the characteristics of the nature and intensity of the body's immune response to the introduction of the pathogen, the degree of their virulence and pathogenicity, as well as disorders of the immunogenesis system. Numerous clinical studies have shown that at the present stage of development of mycology, a change in the spectrum of mycosis pathogens, the development of fungal-bacterial associations entail not only a change in the characteristic clinical manifestations of diseases, but also, importantly, the development of resistance to the antifungal agents used **[1,2].** However, a comprehensive study of the most significant factors influencing the development of pubic trichophytosis, the state of the body's immune reactivity, the study of the nature of the accompanying microflora and skin pH in combination with various clinical forms of trichophytosis in Uzbekistan was not carried out.

It is known that against the background of an imbalance in the immune system and a decrease in nonspecific protective factors of the body, the microbial landscape of the body as a whole, and in particular on the skin, changes. In the foci of zooanthroponotic trichophytosis, often associated microflora complicates the mycotic process, which changes the clinical course of dermatosis. Moreover, the role of secondary microflora in the foci of trichophytosis and the mechanism of its influence on the clinic of the disease have not been studied enough. In addition, the pH environment of the skin plays an important role in the development of this pathology, which contributes to the creation of favorable or unfavorable conditions for the development of various microorganisms and the development of their dysbiosis.

PURPOSE OF THE STUDY. To study the state of the accompanying microflora and the pH of the skin environment in the lesions in patients with pubic trichophytosis.

MATERIAL AND METHODS. The state of the microflora and pH of the skin environment with zooanthroponotic trichophytosis of the pubic area was studied by us in 84 patients in comparison with the data of 20 practically healthy individuals (control group). Among the examined patients with zooanthroponotic trichophytosis of the pubic region, 20 patients had a superficial-spotted form, 22 had an infiltrative form, and 42 had an infiltrative-suppurative form of the disease.

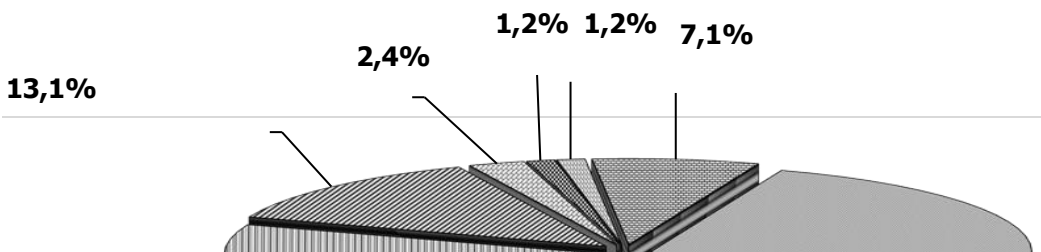
In the study of skin washings from the pubic area in the control group, the content of microbes ranged from 2.0 to 5.0 CFU/cm². In this group, microbiological detection of various microbes was observed in 4 out of 20 individuals. As can be seen from Table 1, the microbial landscape of the skin of the pubic region in apparently healthy individuals includes Staphylococcus epidermidis, aureus, and Candida.

Table 1.

The state of the microflora of the pubic area in the control group (n=20).

Type of microflora	ber of microbes per 1 cm ² of skin (CFU / cm ²)
Staphylococcus epidermidis	5,0 ± 0,3
Staphylococcus aureus	2,0 ± 0,2
Streptococcus haemolyticus	-
Clostridium perfringens	-
Candida	3,0± 0,5
Klebsiella	-
Enterococcus	-

The study of the state of the microflora of the skin of the pubic region in 84 patients with zooanthroponotic trichophytosis showed that the cultural study of skin washings revealed different microflora from the lesion (Fig. 1).



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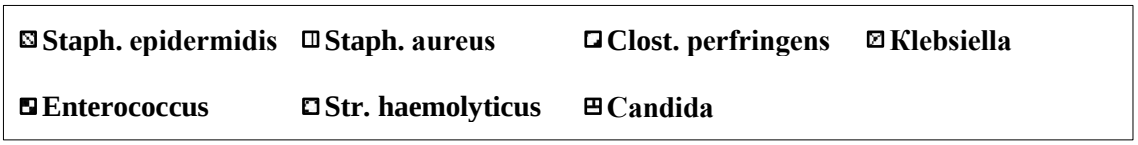

Fig. 1. The state of skin microflora in patients with zooanthroponotic trichophytosis of the pubic area

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Among the identified microorganisms from the lesions of trichophytosis, Staphylococcus epidermidis was sown in 36 (42.9%), Staphylococcus aureus - in 27 (32.1%), Clostridium perfringens - in 11 (13.1%), Candida - in 6 (7, 1%), Klebsiella - in 2 (2.4%) cases, and Enterococcus and Streptococcus haemolyticu - in 1 (2.4%) case.

Table 2.

The state of the microflora of the pubic area in the control group (n=84).

Type of microflora	Total number of microbes per 1 cm2 of skin (CFU/cm2)
Staphylococcus epidermidis	109,0 ± 5,2
Staphylococcus aureus	97,0 ± 4,3
Streptococcus haemolyticus	14,0 ± 1,2
Clostridium perfringens	22,3 ± 2,3
Candida	4,0 ± 0,2
Klebsiella	10,7 ± 4,2
Enterococcus	8,1 ± 0,4

Along with this, when examining the microflora in the lesions of patients with trichophytosis of the pubic region, changes were observed both in qualitative and quantitative characteristics in relation to the control group (Table 2). As can be seen from the table, in the focus of trichophytosis of the pubic region, there is a qualitative predominance of microflora (Streptococcus haemolyticus, Clostridium perfringens, Klebsiella, Enterococcus), which is not a normoflora in the microbial landscape of the skin of healthy individuals. In a place with this, their number increases, for example; St. epidermidis in the control group was 5.0 ± 0.3 CFU/cm², and in the focus of trichophytosis of the pubic region, this figure increased to 109.0 ± 5.2 CFU/cm² ($p<0.001$), an analogous picture was observed with St. aureus 2.0 ± 0.2 and 97.0 ± 4.3 CFU/cm², respectively ($p<0.001$). In the quantitative indicator of fungi of the genus Candida, there was a slight upward trend (3.0 ± 0.5 and 4.0 ± 0.2 CFU / cm², respectively), perhaps small quantitative fluctuations are associated with the antagonistic properties of fungi of the genus Candida and Trichophyton, manifested in growth suppression fungi of the genus Candida last **[3].**

Considering the revealed imbalance in the microbiological landscape of the skin of the pubic area in case of trichophyton damage, it seemed very interesting to study the state of the microflora in the lesions depending on the clinical forms of zooanthroponotic trichophytosis of the pubic area. Studies conducted in 20 patients with a superficially spotty form of zooanthroponous trichophytosis of the pubic region showed that when sowing skin washings of Staphylococcus epidermidis was sown in 9 (45.0%) cases, Staphylococcus aureus - in 4 (20.0%), Clostridium perfringens - in 2 (10.0%) and Candida - in 5 (25.0%) cases (Fig. 2).

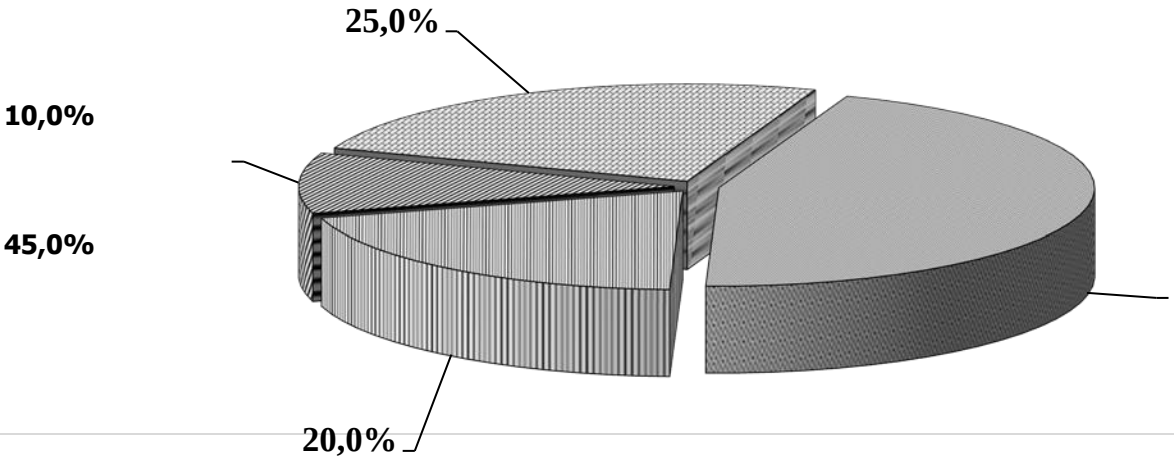

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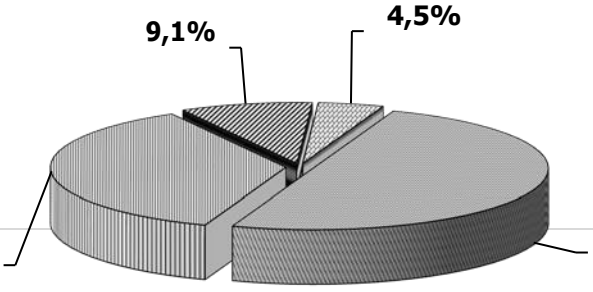
Fig. 2. The state of microflora in patients with superficially spotted form of zooanthroponous trichophytosis of the pubic region

The study of the microbiological landscape in case of damage to the surface-spotted form of zooanthroponous trichophytosis of the pubic region showed a quantitative increase in St. epidermidis compared with the control group 5.0 ± 0.3 CFU/cm² versus 19.0 ± 4.8 CFU/cm², St. aureus 2.0 ± 0.2 CFU/cm² and 14.0 ± 6.4 CFU/cm², respectively (Table 3).

Table 3. **The state of the microflora in the focus of zooanthroponotic trichophytosis of the pubic region depending on the clinical forms of the disease**

Type of microflora	The number of microbes per 1 cm ² of skin (CFU / cm ²)		
	Superficial spotted form (n=20)	ltrative form (n=22)	Infiltrative suppurative form (n=42)
Staphylococcus epidermidis	19,0 ± 4,8	35,4± 7,1	54,6 ± 3,5
Staphylococcus aureus	14,0 ± 6,4	32,0 ± 9,2	51,0 ± 6,0
Streptococcus haemolyticus	-	-	14,0
Clostridium perfringens	4,3 ± 3,0	6,4 ± 4,4	11,6 ± 3,7
Candida	2,0 ± 0,8	2,0	-
Klebsiella	-	-	6,0
Enterococcus	-	-	8,1 ± 5,7

The study of microflora inoculation in patients with infiltrative form of zooanthroponous trichophytosis showed that among patients with this clinical form of the disease, Staphylococcus epidermidis was found in 11 (50.0%), Staphylococcus aureus - in 8 (36.4%), Clostridium perfringens - in 2 (9 .1%) and Candida - in 1 (4.5%) cases (Fig. 3.).



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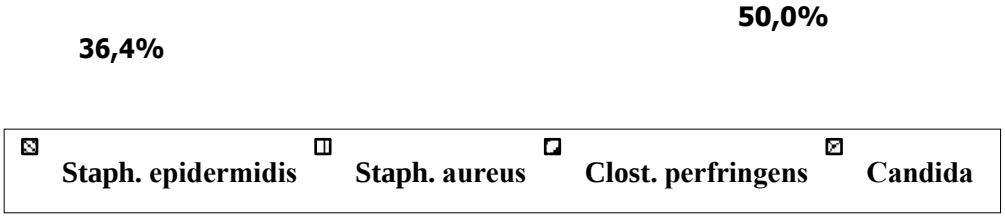

Fig.3. State of microflora in patients with infiltrative form of zooanthroponic trichophytosis of the pubic area

The study of the microbiological landscape with the defeat of the infiltrative form of zooanthroponous trichophytosis of the pubic region revealed both a qualitative and quantitative increase in various types of microorganisms. In quantitative terms, St. epidermidis in the infiltrative form of the disease was 35.4± 7.1 CFU/cm², which prevailed in comparison with the control group 5.0 ± 0.3 CFU / cm ², and in relation (19.0 ± 4.8 CFU / cm ²) to indicators for the surface-spotted form of zooanthroponotic trichophytosis. A similar pattern of quantitative increase was observed for Staphylococcus aureus, which amounted to 32.0 ± 9.2 CFU/cm². On the contrary, in the infiltrative form of the disease, a decrease in the inoculation of fungi of the genus Candida was noted, which was detected in this group only in one case. It is especially important to note that with a change in the form of zooanthroponotic trichophytosis of the pubic region, there is a qualitative change in the composition of microbes in the lesion, which is expressed by the detection of such a microorganism as Clostridium perfringens, which was identified in our studies. As is known, these microorganisms are extremely sensitive to drying and do not multiply on healthy skin, however, according to the scientific literature, a person can be its carrier on the skin in 40% of cases **[4].** This microorganism is able to infect wound surfaces and cause a destructive abscess, where the products of its metabolism can cause toxemia, which is probably what characterizes the violations of the general condition of patients (weakness, fever, etc.) with deep infiltrative-suppurative forms of the disease.

Next, we studied the microbiological state of the skin of the pubic region with a deep (infiltrative-suppurative) form of zooanthroponotic trichophytosis. The results of cultural studies showed an increase in the qualitative indicator with the seeding of lesions with new types of microbes such as Klebsiella in 2 (4.8%) cases, as well as Enterococcus and Streptococcus haemolyticus in 1 (4.8%) case (Fig. 3.9).

Along with them, the quantitative ratio of Staphylococcus epidermidis increased - 54.6 ± 3.5 CFU / cm ², Staphylococcus aureus - 51.0 ± 6.0 CFU / cm ², Clostridium perfringens - 11.6 ± 3.7 CFU / cm ² in the lesion, compared with the superficial - spotted and infiltrative forms of the disease.

The study of microflora inoculation in patients with infiltrative-suppurative form of zooanthroponous trichophytosis of the pubic region showed that among patients Staphylococcus epidermidis was found in 16 (38.0%), Staphylococcus aureus - in 15 (35.7%), Clostridium perfringens - in 7 (16, 7%), Klebsiella - in 2 (4.8%) cases, and Enterococcus and Streptococcus haemolyticus in 1 (2.4%) case (Fig. 4). And fungi of the genus Candida were not detected in this group of patients, which is consistent with the latest literature data on antagonistic properties with fungi of the genus Trichophyton, which, in quantitative terms, becomes larger in the lesions of the infiltrative and infiltrative-suppurative form of zooanthroponic trichophytosis of the pubic region.

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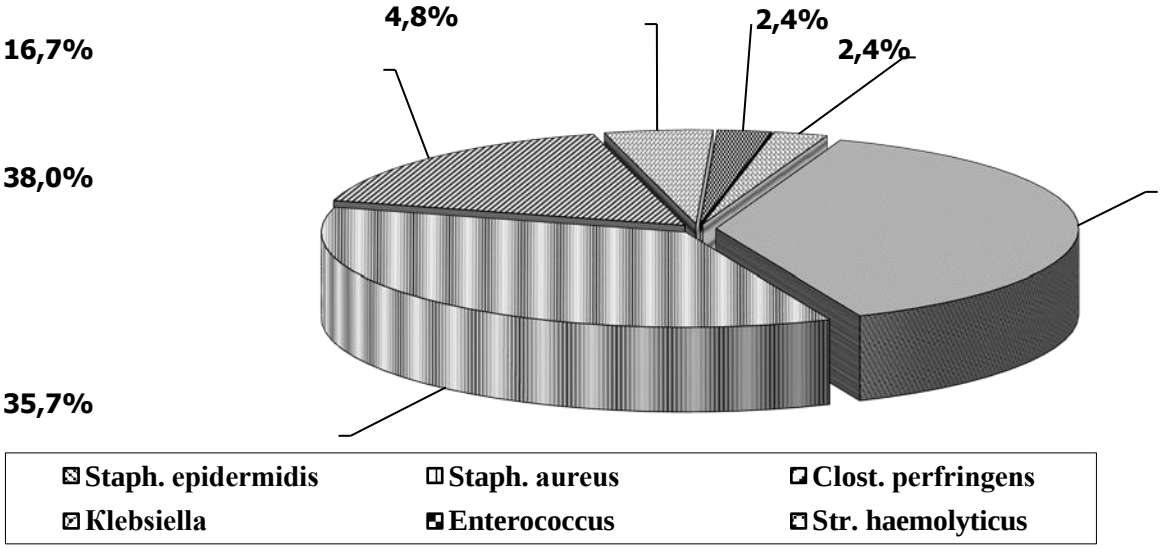

Fig. 4. The state of the microflora in patients with infiltrative-suppurative form of zooanthroponotic trichophytosis of the pubic region

The results of the study showed that in all clinical forms of pubic trichophytosis, there is a combination of concomitant microflora with the causative agent of the underlying disease, which is characterized by both a qualitative and quantitative increase in it in the lesion in direct proportion to the clinical forms of the disease.

It is especially important to note that with the transition to more severe forms of the disease, there is a large contamination of the lesions with various types of microorganisms, especially the detection of anaerobic species such as Clostridium, Klebsiella, which are unsuitable for reproduction on the surface of the skin. However, given the fact that the dermis actively metabolizes oxygen diffusing through the epidermis and taking into account the characteristics of the pubic and perigenital zones, such as relative humidity (over 90%) and the effect of occlusion, which leads to an increase in the pH of the environment in these areas of the skin, various microorganisms (aerobes and anaerobes) find favorable conditions for survival and generation. Identical conditions (humidity 97%) are favorable for growth and reproduction of trichophyton dermatomycetes **[4,5].** Optimal conditions, the symbiosis of these microorganisms, violations of the functions of the immune system, which cannot adequately control and fight secondary infections, are probably the main factors contributing to the development of atypical localization of trichophytosis and aggravation of the course of mycotic dermatosis with a deeper lesion of the skin and the development of an infiltrative-purulent process with trichophytosis of the pubic region.

In this connection, in further studies, we studied the pH level of the skin environment in patients with zooanthroponotic trichophytosis of the pubic region.

A comparative study of the pH of the environment of the affected area of the skin of the pubic area in patients with trichophytosis was carried out in 84 patients, depending on the clinical forms of the disease, in comparison with the data of 20 practically healthy individuals (control group). As is known from the scientific literature, the pH environment of the pubic region, perineum and perigenital zones has a neutral pH environment, while in other parts of the skin, these values average 5.4 **[4,5].**

The results of our studies of the pH of the medium in the control group are consistent with the scientific literature and average 6.98 ± 0.10. Studies of the pH of the environment in patients with zooanthroponotic trichophytosis of the pubic area in the lesion, significantly increase compared with the data of the control group ($p<0.001$) and average 7.52 ± 0.07 with 6.98 ± 0.10 in the control (table 4).

Table 4.

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pH index of the skin environment in patients with various clinical forms of trichophytosis of the pubic area (M±m)

Clinical forms	The number of examined persons	f the skin nt
Control	20	6,98 ± 0,10
In the lesion focus of patients with trichophytosis	84	7,52 ± 0,07*
Superficial spotty	20	7,50 ± 0,11*
Infiltrative	22	7,56 ± 0,09*
Infiltrative suppurative	42	7,50 ± 0,13*

Note: p is the reliability of the data in relation to the control. * - p<0.001

Analysis of changes in the pH value of the skin environment in patients with zooanthroponotic trichophytosis, depending on the clinical forms, revealed that in all the examined groups of patients with various clinical forms of the disease, the same statistically significant increase in the pH of the skin environment in the lesions was observed in relation to the indicators of healthy individuals (p<0.001) . This indicates that in this pathology there is a violation of the pH value of the skin environment with its shift to the alkaline side. The indicators themselves did not differ significantly in different clinical forms of the disease.

Based on the research results and scientific literature data, it should be noted that the increase in the number of cases of zooanthroponotic trichophytosis of the pubic area, along with the above factors, is characterized by an increase in the pH values of the skin environment of the pubic area to the alkaline side, which also increases by 1.5 units in hyperhidrosis, which is often created by a greenhouse zone effect. **[5,6].** In addition, the alkaline environment, being favorable for the generation of secondary microflora, promotes loosening of the epidermis and facilitates a deeper penetration of trichophyton and secondary microflora into the skin, creating favorable soil for the development of deep forms (infiltrative and infiltrative-suppurative) of the disease with the development of an infiltrative-purulent process. with zooanthroponotic trichophytosis of the pubic region.

Thus, the studies showed an abundance of microbial landscape in the foci of zooanthroponotic trichophytosis of the pubic region with the detection of Staphylococcus epidermidis - in 42.9%, Staphylococcus aureus - 32.1%, Clostridium perfringens - 13.1%, Candida - in 7.1%, Klebsiella- 2.4%, Enterococcus and Streptococcus haemolyticus - in 2.4% of cases. Which were characterized by both qualitative and quantitative increase in the lesion in direct proportion to the clinical forms of the disease. In patients with zooanthroponotic trichophytosis of the pubic region, the disease occurs against the background of a violation of the pH value of the skin environment with a shift to the alkaline side, which contributes to the creation of favorable conditions for the reproduction of various microorganisms with the development of their dysbiosis and complicates the clinical course of the mycotic process.

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INVESTIGATING THE ROLE OF KLOTHO IN DIABETIC NEPHROPATHY: CORRELATION WITH GLYCEMIC STATUS

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Abstract:

Diabetic nephropathy (DN) is a prevalent and severe complication of diabetes mellitus that leads to progressive kidney damage, often culminating in end-stage renal disease (ESRD). The pathogenesis of DN is multifactorial, involving chronic hyperglycemia, oxidative stress, inflammation, and fibrosis. Despite advances in therapeutic strategies, DN remains a significant cause of morbidity and mortality in diabetic patients. Therefore, identifying novel biomarkers and therapeutic targets is crucial to improve the management of DN.
One such promising target is Klotho, a protein that has garnered attention due to its potential anti-aging, anti-inflammatory, and renal protective properties.

Keywords: Cystatin C, glycated hemoglobin, diabetic nephropathy, glomerular filtration rate, kidney dysfunction.

What is Klotho? Klotho is a transmembrane protein that primarily functions in the kidneys, although it also exists in a soluble form in the blood. It was first identified as an anti-aging gene, and subsequent studies have revealed its broader role in maintaining kidney function, regulating phosphate metabolism, and modulating oxidative stress and inflammation.[1,3]
Klotho exerts its protective effects by:
- Regulating phosphate and calcium homeostasis: Klotho works alongside fibroblast growth factor-23 (FGF-23) to regulate phosphate excretion by the kidneys.
- Inhibiting fibrosis: Klotho downregulates pathways involved in kidney fibrosis, such as the TGF-β pathway, which is highly active in DN.
- Reducing oxidative stress: It acts as an antioxidant, helping to mitigate oxidative damage—a key contributor to DN progression.
- Modulating insulin signaling and glucose metabolism: Emerging evidence suggests that Klotho may also influence glucose metabolism and insulin sensitivity, which is particularly relevant in diabetes.

The Role of Klotho in Diabetic Nephropathy
In DN, the expression of Klotho is significantly reduced, both in the kidneys and in circulation, which may contribute to the progression of kidney damage. Low Klotho levels have been associated with worse outcomes in kidney disease and may serve as a potential biomarker for early detection of renal dysfunction in diabetic patients.[4,5]
Recent research has focused on understanding the correlation between blood Klotho levels and glycemic control in patients with DN. The hypothesis is that reduced Klotho levels may be linked to poor glycemic status, thus contributing to the worsening of kidney function in diabetic patients.[2,6]

Study Objective

This study aimed to investigate:
1. The correlation between blood Klotho levels and glycemic control (as measured by glycated hemoglobin, HbA1c) in patients with diabetic nephropathy.
2. The relationship between Klotho levels and kidney function, including markers like estimated glomerular filtration rate (eGFR) and albuminuria.
3. The potential role of Klotho as a biomarker for early detection of DN and its utility in monitoring disease progression.

Methodology

- Study Population: The study included patients diagnosed with diabetic nephropathy, along with a control group of diabetic patients without nephropathy and healthy individuals for comparison. The severity of DN was classified based on albuminuria levels and eGFR.
- Blood Klotho Measurement: Serum levels of soluble Klotho were measured using enzyme-linked immunosorbent assay (ELISA).
- Glycemic Control: Glycated hemoglobin (HbA1c) was used as a marker of long-term glycemic control. Fasting blood sugar (FBS) and postprandial glucose (PPG) levels were also recorded.
- Kidney Function Assessment: eGFR was calculated using the CKD-EPI formula, and albuminuria was measured to assess kidney damage.

Key Findings

1. Klotho Levels and Glycemic Control:
   - Patients with poor glycemic control (high HbA1c) exhibited significantly lower levels of circulating Klotho compared to those with better glycemic control.
   - A negative correlation was observed between Klotho levels and HbA1c, indicating that as glycemic control worsens, Klotho levels decrease.
2. Klotho Levels and Kidney Function:

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- Lower Klotho levels were associated with reduced eGFR and higher levels of albuminuria, suggesting that Klotho deficiency may be linked to the progression of kidney damage in DN.
- Patients with advanced DN had lower Klotho levels than those in the early stages of the disease, indicating that Klotho levels may reflect the severity of renal impairment.

3. Potential Role of Klotho as a Biomarker:
- The study suggests that low blood Klotho levels could serve as an early biomarker for DN, potentially allowing for earlier intervention before significant kidney damage occurs.
- Klotho may also have a prognostic role, as its levels were inversely correlated with the progression of DN, highlighting its potential use in monitoring disease progression.

Mechanistic Insights

The exact mechanisms by which Klotho influences glycemic control and kidney function in DN are still under investigation, but several hypotheses have been proposed:

- Inhibition of Inflammatory Pathways: Klotho may reduce the activity of pro-inflammatory cytokines, such as TNF-α and IL-6, which are elevated in DN and contribute to kidney damage and insulin resistance.
- Modulation of Insulin Signaling: Klotho may enhance insulin sensitivity in peripheral tissues, thereby improving glycemic control and reducing the risk of hyperglycemia-induced kidney damage.
- Reduction of Oxidative Stress: By acting as an antioxidant, Klotho may mitigate the oxidative damage caused by chronic hyperglycemia, thereby protecting kidney cells from further injury.

Clinical Implications

The findings of this study have several implications for the management of DN:

- Klotho as a Therapeutic Target: The restoration of Klotho levels, either through pharmacological agents or lifestyle interventions, could represent a novel therapeutic strategy to slow the progression of DN. Therapies aimed at increasing Klotho expression or administration of recombinant Klotho could be explored.
- Early Diagnosis and Monitoring: Measurement of serum Klotho levels may help in the early diagnosis of DN, particularly in patients with subclinical kidney damage. It could also be used to monitor the efficacy of treatments aimed at improving glycemic control and kidney function.
- Personalized Medicine: Given the variability in Klotho levels among patients, it may be possible to stratify diabetic patients based on their Klotho levels and glycemic status, enabling more personalized treatment approaches.

The study highlights a significant correlation between blood Klotho levels and glycemic control in patients with diabetic nephropathy. Reduced Klotho levels are associated with both poor glycemic status and worsening kidney function, suggesting that Klotho could serve as a valuable biomarker for early detection and monitoring of DN. Furthermore, Klotho holds promise as a potential therapeutic target, offering new avenues for slowing the progression of kidney damage in diabetic patients. Future research should focus on validating these findings in larger cohorts and exploring the therapeutic potential of Klotho modulation in DN management.

METHODS: Blood samples were collected from two groups of diabetic nephropathy patients: Group 1 (C2, A2) and Group 2 (C3a, A2). The selection criteria for these groups were based on the severity of nephropathy and diabetes management status.

Various biochemical indicators were analyzed to assess renal function and glycemic control. These indicators included:

- Fasting Blood Glucose Levels: Measured to evaluate baseline glycemic status.
- Postprandial Blood Glucose Levels: Assessed to understand glucose metabolism following meals.
- Glycated Hemoglobin (HbA1c): Used as a marker of long-term glycemic control over the previous 2-3 months.
- Blood Klotho Levels: Evaluated as a potential biomarker for renal function and aging.
- Glomerular Filtration Rate (GFR): Measured using a combination of serum creatinine and cystatin C levels to provide a more accurate assessment of renal function.

All biochemical analyses were conducted using standardized laboratory methods to ensure accuracy and reliability of the results. Statistical analysis was performed to compare the biomarkers between the two groups, providing insights into the relationship between glycemic control and renal impairment in diabetic nephropathy.

RESULTS:

In Group 1, the mean fasting blood glucose level was 10.2 ± 3.9 mmol/l, indicating a moderate level of hyperglycemia. In contrast, Group 2 had a mean fasting blood glucose level of 12.47 ± 2.9 mmol/l, reflecting more severe glycemic control issues.

Postprandial blood glucose levels also showed significant differences between the groups, with Group 1 reporting levels of 13.3 ± 5.2 mmol/l and Group 2 exhibiting higher levels at 16.7 ± 3.7 mmol/l. These findings suggest that patients in Group 2 experience greater fluctuations in blood glucose levels after meals.

Glycated hemoglobin (HbA1c) levels were similarly elevated in both groups, with Group 1 showing a mean of 9.35 ± 2.6% and Group 2 at 10.7 ± 1.9%. These

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percentages indicate poor long-term glycemic control, with Group 2 demonstrating a higher average HbA1c, which is associated with an increased risk of diabetes-related complications.

Notably, blood klotho levels were significantly different between the two groups. Group 1 exhibited higher klotho levels at 295.4 ± 28.13 pg/ml compared to Group 2, which had levels of only 142.3 ± 8.2 pg/ml. This substantial difference may indicate a protective renal mechanism in Group 1 that is compromised in Group 2. Additionally, the glomerular filtration rate (GFR), measured using the creatinine-cystatin C method, was significantly higher in Group 1 at 69.3 ± 6.63 ml/min/1.73 m² compared to Group 2, which had a GFR of 54.9 ± 3.14 ml/min/1.73 m². The statistically significant difference ($p < 0.05$) highlights the progressive renal dysfunction associated with worsening glycemic control in diabetic nephropathy patients.

DISCUSSION:

The findings of this study suggest a significant correlation between blood klotho levels and glycemic status in patients with diabetic nephropathy. Group 1, characterized by lower blood glucose levels, exhibited higher levels of blood klotho and a better glomerular filtration rate (GFR) compared to Group 2. This indicates not only improved renal function but also suggests that higher klotho levels may be associated with better metabolic control.

These results imply a protective role of klotho in the context of diabetic nephropathy[4,5]. Klotho, known for its anti-aging and renoprotective properties, may help mitigate the detrimental effects of hyperglycemia on kidney function. The elevation of klotho in Group 1 could contribute to enhanced renal function and improved glycemic control, potentially serving as a biomarker for kidney health in diabetic patients.

However, further research is warranted to elucidate the underlying mechanisms that link klotho levels with glycemic control and renal function. Investigating the pathways through which klotho exerts its effects could provide insights into its therapeutic potential[3,5]. Additionally, exploring the implications of modulating klotho levels—whether through pharmacological means or lifestyle interventions—may lead to innovative strategies for managing diabetic nephropathy and preventing its progression.

CONCLUSION:

In conclusion, this study offers valuable insights into the intricate relationship between blood klotho levels, glycemic status, and renal function in patients with diabetic nephropathy. The observed correlation underscores the potential role of klotho as a protective factor in renal health, particularly in the context of diabetes. Understanding the role of klotho in this setting could pave the way for novel therapeutic strategies aimed at mitigating kidney damage and improving glycemic control in diabetic individuals. Future studies should focus on the mechanisms of action of klotho and its potential as a target for intervention in diabetic nephropathy management.

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MORPHOMETRIC PARAMETERS OF THE GASTRIC MUCOSA UNDER THE INFLUENCE OF POLYPHARMACY IN WHITE RATS

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Abstract:

Polypharmacy is the simultaneous use of several drugs by one patient. As the population ages in developed countries, especially in the UK, the number of people with chronic diseases is increasing and there is increasing pressure on physicians to adhere to evidence-based guidelines for the management of chronic diseases .

Keywords: Polypharmacy, gastrointestinal tract, multiple diseases, clinical outcomes, lymphoid tissues

RELEVANCE hen the pesticide "Fastokin" was injected into the body of experimental animals, a change in the mucous membrane of the stomach, i.e. inflammation, was detected. The selection of the stomach for research is explained by the fact that many people suffer from various diseases in this organ: stomach inflammations and ulcers, and at the same time, the information about the fine structure of all the components that make up the walls of the stomach is not sufficiently revealed in the scientific literature [1,3,5,7,9,11,13]. Recent years have also seen the development of smartphone applications, such as My Medicine Passport, to improve communication between patients and health care providers, improve people's understanding of their condition and treatment, and track changes to a patient's medication. Polypharmacy is the simultaneous use of several drugs by one patient. As the population ages in the developed world, particularly the UK, the number of people with chronic diseases is increasing, and there is increasing pressure on doctors to adhere to evidence-based guidelines for the management of chronic diseases [2,4,6,8,10,12,14,16,18].

Despite the fact that many studies have been conducted in polypharmacy, information about the stomach, which is the central organ of the alimentary canal, is very scarce in the literature. In recent years, the issue of widespread use of non-steroidal anti-inflammatory drugs in order to mobilize the body's natural defenses, to form physiological and immunobiological reactions for the prevention and treatment of all types of baldness remains relevant [2,15,17,19,20, 21].

When studying the statistics of gastroenterological diseases in 2007-2017 in order to introduce pharmaceutical assistance in our country, one of the leading places among diseases of the digestive system was occupied by functional diseases of the stomach and intestines. Functional diseases of the alimentary tract accounted for 15-25% of the adult population, and the incidence of this disease increased by 22.4% in the last 10 years.

In foreign countries, the rate of death from side effects of drugs is one of the highest among the population deaths. Statistics show that drug polypharmacy with nonsteroidal anti-inflammatory drugs is common, and every doctor can unknowingly allow it. It allows to determine the reactive morphofunctional changes in the mucous membrane of the stomach wall observed as a result of factors that harm the human body and have a negative effect on it.

There are also cases where damage to the gastric mucosa caused by long-term use of anti- inflammatory drugs leads to the development of life-threatening situations and a decrease in the adaptive response. The study of the available scientific literature showed that the data on the morphological and morphometric changes of the structure of the stomach wall under the influence of polypharmacy have not been sufficiently studied, and this remains an open question until now. The connection of the study with the research plans of the higher educational institution where the dissertation was completed. In 2020-2022, the implementation of this dissertation work according to the plan and topic of scientific research work of the Bukhara State Medical Institute named after Abu Ali ibn Sina: "Morphometric changes of the gastric mucosa wall in the conditions of polypragmasia" is a new method for effective treatment and prevention of pre-disease pathological conditions. helps develop approaches.

PURPOSE OF SCIENTIFIC RESEARCH: The study was conducted on a total of 180 5-month-old adult white rats. According to the purpose of the study, all laboratory animals were divided into 5 groups. 5 different types of anti-inflammatory drugs were used in polypharmacy in different combinations.

The histological material obtained from the cardiac, bottom, body and pyloric parts of the stomach of the experimental white male rats served as the subject of

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the study.

MATERIAL AND METHODS

Organometric, histomorphometric, microscopic and statistical methods were used as research methods. Organometric, histomorphometric and microscopic methods were used to study the morphogenesis structures (organ, tissue and cell) of the gastric mucosa and submucosa base of 5- month-old purebred male rats. In order to process the results obtained in our study, statistical methods were used. Structural changes in the organs of the digestive system have been proven to cause profound disturbances in the processes of growth and formation of the mucous membrane of the stomach and its glandular tissue, submucosa base, which is found to be accompanied by a decrease in the total thickness of the stomach wall; When using more than 3 types of anti- inflammatory drugs at the same time, the negative effects of polypharmacy increase significantly. The rate of formation of the structural and functional zones of the stomach wall, the activity of the cells in the mucous membrane, the change in the shape of the lymphocytes located at the base of the mucosa, and the decrease in the morphological parameters were analyzed; Using the methods of modern morphological research (organometric, histological, histomorphometric, statistical), new information was obtained directly about the morphological and morphometric parameters of the stomach wall. Changes identified at the tissue, cellular and intercellular levels are characterized by hypotrophic and hypoplastic changes in the structures of the gastric wall of the white male rat. The practical results of the research are as follows: The results of the conducted scientific research allow to determine the degree of morphometric changes in the stomach in polypharmacy, as well as to significantly deepen certain knowledge on the prevention, early detection and pathogenetic therapy of possible damage to all anatomical structures that make up the stomach wall in age categories.
The results of the research were implemented in the educational process of the departments of anatomy, clinical anatomy (CAD), histology, cytology and pharmacology of the Bukhara State Medical Institute.

Reliability of research results. In the process of research based on innovative, experimental, morphometric, laboratory and statistical methods of research. The above helps to determine the most characteristic regular changes of morphofunctional parameters, as well as to record the formation and genesis of pathological disorders in the stomach walls of rats in polypharmacy. In addition, the reliability of the results of scientific research is based on the confirmation by the competent authorities of the data and conclusions obtained from the comparative analysis of the results of the work with the information presented in local and foreign sources. Scientific and practical significance of research results. According to the scientific significance of the results obtained from the research on the structural disorders of the gastric wall morphological parameters, it is manifested in the rational approach to the determination of the complex defense mechanism of the organism, which occurs as a result of the influence of various pathogenic factors. The scientific and practical significance of the research results is based on the high level of explanation of the structural and functional mechanisms of changes in the stomach wall observed in the norm and the effect of polypharmacy. This, in turn, helps to determine the most critical periods that are necessary for the implementation of measures for the prevention of stomach diseases.
The results of the conducted scientific research are very important in the field of applied medicine, their fundamental-theoretical and practical importance. This is an experimental basis for the development of scientific methods of prevention, prevention and pathogenetic therapy of possible damage to other layers of the organ wall. The importance and effectiveness of morphometric study of hidden pathomorphological changes occurring in all layers of the stomach wall in polypragmasy was justified.

RESULT AND DISCUSSION

This work was carried out in the research laboratory of the Bukhara State Medical Institute named after Abu Ali Ibn Sina during 2020-2022. A total of 180 purebred male rats were selected as experimental animals and kept in quarantine for 7 days. From the day of transfer to vivarium conditions, a 3-times-a-day feeding regimen was established. In order to study the effects of polypharmacy in experimental laboratory animals, a group of anti-inflammatory drugs were used: Aspirin (SAQDV - salicylic acid derivatives), Paracetamol (SAQDV - anilide derivatives), Ibuprofen (SAQDV - propionic acid derivatives), Dexamethasone (synthetic hydrocorticosteroid), Plaquinil sulfate (anti-inflammatory an antimalarial with an antimalarial effect). Experimental animals were divided into 5 groups (n = 180): I - control group (n = 25); II - group - rats that received 2 types of anti-inflammatory drugs, paracetamol 15 mg / kg, aspirin 5 mg / kg (n = 45); III-group - rats that received 3 types of anti-inflammatory

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drugs, paracetamol 15 mg / kg, aspirin 5 mg / kg, ibuprofen 6 mg / kg (n = 35); Group IV - rats 4 types of anti-inflammatory drugs, paracetamol 15 mg/kg, aspirin 5 mg/kg, ibuprofen 6 mg/kg, dexamethasone 0.1 mg/kg. (n = 35); Group V - rats receiving 5 types of anti-inflammatory drugs, paracetamol 15 mg/kg, aspirin 5 mg/kg, ibuprofen 6 mg/kg, dexamethasone 0.1 mg/kg, hydroxychloroquine sulfate 6.5 mg/kg (n = 40). The doses of the used drugs were calculated empirically and were injected into the stomach in the form of a solution through a metal probe every day for 10 days. White rats in the control group were injected with 0.5 ml of distilled water through a metal tube for 10 days from 141 days.

After opening the abdomen, the macroanatomy, skeletoscopy and syntopy of the stomach were studied. After the study of the macroanatomy of the stomach was completed, the surrounding tissues were dissected. At the next stage, the weight of the rats was measured using a scale, and the anatomical parameters of the stomach removed using a barbell were measured. Organ wall components such as mucosa, folds, pits between folds, submucosa base, glandular tissue, muscle, and total thickness of the stomach wall were measured. For morphological and morphometric studies, the removed stomach was fixed in Buen's solution, and after the necessary process, the material was embedded in paraffin according to generally accepted rules. After that, 6-7 μm thick transverse histological sections were prepared by bleaching the pieces from the cardial, bottom, body and pyloric parts of the stomach in high concentration alcohol. After deparaffinization, the sections were stained with hematoxylin-eosin and Van-Gison method. Morphometric studies and measurements of tissues taken from stomach sections were performed under a NLCD-307B microscope. The following indicators were determined when the topographic-anatomical and skeletoscopic data of the stomach of a white rat were studied. In non-laboratory white rats, the upper or upper back wall of the stomach touches the jejunum and ileal loops on the right side, and the left adrenal gland and the left kidney on the left side. Stomach closes the upper 2/3 of the lower surface of the adrenal gland of the left kidney and close to the upper end of the left kidney, i.e. the front end. The left side of the stomach is rounded, it is located mainly under the diaphragm, and on the left side it is located touching the spleen. The right side of the stomach narrows and connects from the last part to the beginning of the duodenum. Adjacent to the right side of the stomach is the duodenum, which is external to it, while the rest of the stomach lies under the visceral surface of the liver. The above condition means that it has reached the right border of the liver gate (fig. 1).

Note: the number of rats that died during the experiment is shown in parentheses In the process of using experiments on laboratory rats, our actions were in accordance with the requirements of the document "Rules for conducting work with experimental animals" (No. 18 dated 16.01.2018) of the Ethical Committee of the Bukhara State Medical Institute named after Abu Ali ibn Sina, in addition, in 1964, the International Medical The declaration adopted by the association in Helsinki and completed in 1975, 1983, 1989, 1996, 2000, 2002, 2004, 2008, 2013 was strictly observed. The weight of the experimental rats was measured in the morning at the specified times. After that, the experimental rats were quickly decapitated by ether anesthesia on an empty stomach, and they were removed from the experiment.

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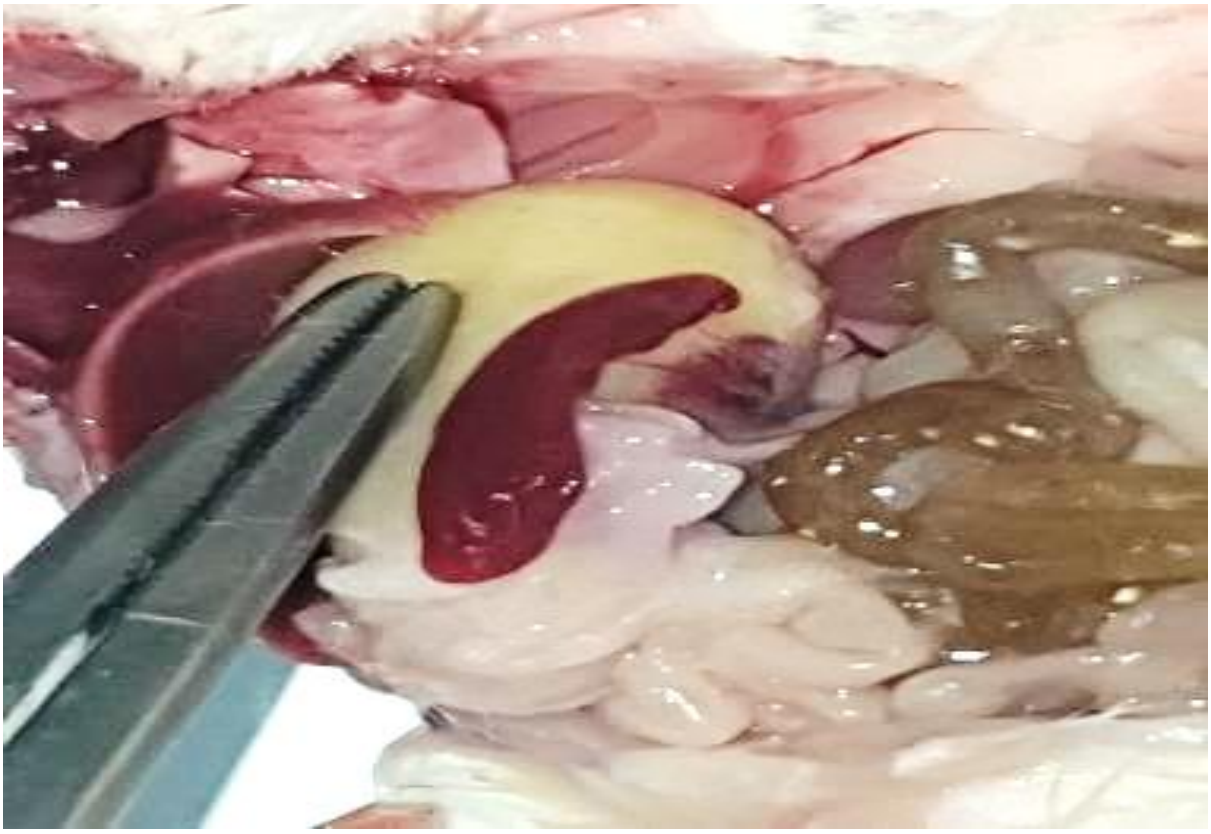

Figure 1. Topography-anatomy of five-month-old white rat stomach.

A small curvature of the stomach wall is located transversely in its front part, and after the organ is full, it is observed to increase in size. In the lesser curvature of the stomach, there is a junction of the esophagus with the stomach, and it is connected to a specific topographical-anatomical area, that is, in the middle part of the lesser curvature of the stomach (figure 1). The greater curvature of the stomach is located on the back of the organ, and is often located transversely. There are several lines from the abdominal organs of white rats to the stomach, and they are as follows: Stomach- splenic line: - from the spleen to the great curvature of the stomach; Diaphragm-stomach line: - from the diaphragm to the left half of the greater curvature of the stomach; Liver-stomach section: - from the area of the liver gate to the small curvature of the stomach; Gastrointestinal tract: - starts from the great curvature of the stomach and continues to the transverse colon. Five-month-old purebred laboratory rats have fully formed stomachs. When the five-month-old rats in the experiment were examined macroscopically, the following data were obtained:

The body weight of five-month-old laboratory animals varied from 189-258 g, and the average was 244.6±6.3 g. The total length of the white rat stomach in the control group was 33-35 mm, with an average of 34.62±0.18 mm. The width of the member varied from 13 to 15 mm and averaged 13.81±0.18 mm. The thickness of the studied organ varied from 12 to 15 mm, and the average was 13.69±0.32 mm. The length of the large curvature is around 37 - 38 mm, on average - 37.43±0.10 mm. The length of the small curvature was 14 - 15 mm, the average was equal to -14.65±0.10 mm. Group V. Comparative description (%) of the morphological parameters of the components of the stomach wall of white male rats in the period of 5 months, with the parameters of the control group.

The following results were obtained when the components of the gastric wall of experimental group V rats were compared with 5-month-old white rats in the control group. The thickness of the gastric wall of the cardiac part of the mucous layer is 8.4%, the height of the fold is 8.8%, the cavity between the folds is 6.08%, the submucosa base is 10.5%, the thickness of the total muscle layer is

0.21%, the gland it can be seen that the tissue is reduced by 37.0%, and the total thickness of the stomach wall is reduced by 2.21%. At the bottom of the

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organ wall, these indicators changed as follows. The height of the total mucous layer increased by 7.6%, the height of its fold increased by 10.01%, the indentation between the folds increased by 8.52%, the submucous base increased by 17.8%, the thickness of the general muscle layer increased by 0.29%, glandular tissue increased by 29, 7%, and the total thickness of the stomach wall decreased by 3.89%, the height of the mucous layer in the body of the stomach decreased by 6.52%, the height of the fold by 10.7%, the cavity between the folds by 16.2%, the submucosa base by 16 ,7%, the thickness of the total muscle layer decreases by 0.61%, the glandular tissue decreases by 34.4%, and the total thickness of the stomach wall decreases by 3.01%. In the pyloric part of the medial wall, the height of the mucous layer is 6.2%, the height of the fold is 9.84%, the indentation between the folds is 15.1%, the submucous base is 15.9%, the thickness of the general muscle layer is 1.6%, the gland it was found that the tissue decreased by 32.2%, and the total thickness of the stomach wall decreased by 2% (table 2).

CONCLUSION

Different levels of morphological changes occur under the influence of different amounts of drugs. According to the obtained data, the overall thickness of the stomach wall significantly decreased in groups IV-V due to the decrease in the size of the gastric mucosa and the mucosal base after the effect of drugs. These changes were 1.60% in the cardiac part, 3.27% in the gastric fundus, 3.33% in the body and 3.65% in the pyloric part of laboratory animals of the IV group, and 2.21% in the cardiac part of the organ in the laboratory animals of the V group. %, changed to 3.89% in the base, 3.0% in the body of the stomach and 5.2% in the pyloric part. When the adverse effects of polypharmacy with anti-inflammatory drugs were compared with the rats of the experimental control group and the rest of the groups, when the measurements of all the morphometric parameters obtained were viewed in the increasing order of the group, it was observed that the negative effects significantly increased in accordance with it and parallel to it.

The adverse effects of polypharmacy of anti-inflammatory drugs in the experimental group of rats in the stomach wall, mucosal base and glandular tissue in the experimental group were corrected in the V-group compared to the I-control group. In this case, in the cardiac part of the organ wall of group V, the height of the mucous layer of the gastric wall is 8.4%, the mucosal base is 10.5%, and the glandular tissue is 37.0%, the mucosal layer is 7.60% at the bottom of the stomach, 17.8% based on the mucosa., and in the gland tissue by 29.7%, the height of the mucous membrane in the organ body by 6.52%, the base of the mucosa by 16.7% and in the gland tissue by 34.4%, the height of the mucous membrane in the pyloric area of the stomach by 6.2%, the mucosa it was found that it did not decrease by 15.9% in the base and by 32.2% in the gland tissue.

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THE ROLE OF REMOTE DIAGNOSTICS IN MEDICINE.

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Abstract:

the work presents information about the technology of remote diagnostic systems, highlighting the stages of allowing you to identify various diseases and assess the patient's condition in advance without direct contact with the doctor. The principle and limitations of multichannel cardiography are looked at.

Keywords: remote diagnostics, multichannel, cardiography, heart, neurology, coronary, cardiomyopathies, arter, cardiologist.

Remote diagnostics, intelligent monitoring and disease prediction systems are based on the use of machine learning algorithms and large-scale data analysis. They allow you to collect information about the state of the human body, analyze it and determine the relationship between various health indicators.

Remote diagnostic systems use a variety of data to determine the state of technology or human health.

Picture-1. Types of remote treatment

Some of this information may include:

• Measurement of physiological indicators such as body temperature, pulse, pressure and breathing;

* Results of examination of blood, urine and other biological materials;

* Images obtained using medical equipment such as X-ray and ultrasound machines;

• Equipment performance data such as temperature, pressure, speed and vibration;

• Information about hardware settings and parameters.

These data are processed and analyzed to identify potential problems or abnormalities. The results can be used to prevent equipment failure or to diagnose diseases.

Remote diagnostic systems allow you to identify various diseases and assess the patient's condition in advance without direct contact with the doctor.

Some diseases that can be detected using such systems include: 1. Heart disease: with remote diagnostic systems, it is possible to monitor the heart rhythm, measure blood pressure and detect cardiac dysfunction. 2. Respiratory diseases: remote diagnostic systems allow you to control respiratory activity and detect the presence of diseases such as asthma or chronic obstructive pulmonary disease.

3. Neurological disorders: with remote diagnostic systems, it is possible to assess the nervous system and determine the presence of neurological disorders such as Parkinson's disease or epilepsy. 4. Dermatological diseases: remote diagnostic systems allow you to visually assess the condition of the skin and determine the presence of various dermatological problems, such as eczema or psoriasis.

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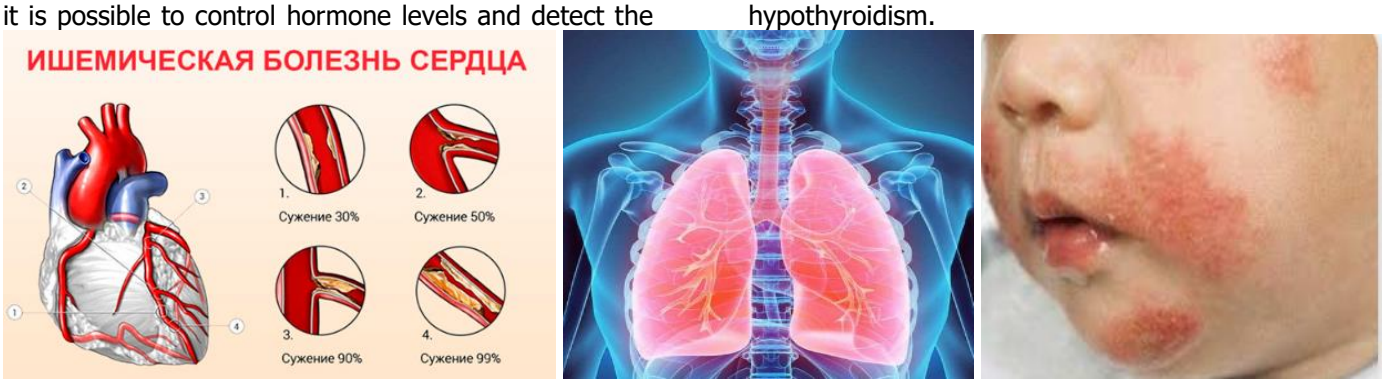
5. Endocrine disorders: with remote diagnostic systems, it is possible to control hormone levels and detect the presence of endocrine disorders such as diabetes or hypothyroidism.



Picture-2. Types of sickness

However, it should be noted that remote diagnostic systems do not replace full medical advice and diagnostics. They serve as an auxiliary tool for pre-checking and monitoring the patient's condition. If any abnormalities are found, it is recommended to consult a doctor for a more accurate diagnosis and treatment.

Multichannel cardiography is a cardiac examination method that allows the electrical activity of the heart to be recorded at multiple points using multiple electrodes at the same time.

Picture-3. Exterior of electrocardiograph

Multichannel cardiography (MEKG) allows simultaneous recording of electrical activity of the heart at different points in the chest, allowing for a more complete picture of cardiac activity and detection of disorders that can be missed in a regular ECG. In addition, the Megg allows a detailed analysis of changes in the electrical activity of the heart during exercise or in the conditions of everyday life. In general, the Megg is a more accurate and informative method of examining the heart than the normal ECG.

Multichannel cardiography (ICC) is one of the most common methods of examining the heart. With its help, many heart diseases can be detected, for example:• Koroner arter kasalligi (SAPR)

- Cardiac arrhythmias
- Cardiac conduction disorders
- Heart valve diseases
- Cardiomyopathies

* Congenital heart defects

ICC provides a more accurate and detailed account of cardiac activity than simple single-channel cardiography. In addition, it can be used to control the treatment of heart disease and assess the effectiveness of therapy. The multichannel cardiography (ICC) procedure is performed using a special apparatus called a cardiograph. During the procedure, the patient is placed electrodes in the chest, which record the electrical activity of the heart. Then the patient is offered to lie on the couch, after which the car begins to register information about the activity of the heart within a few minutes. These data are then analyzed by a cardiologist to identify possible disturbances in cardiac activity. The multichannel cardiography procedure is safe, non-invasive and does not cause pain.

Before performing multichannel cardiography, the following restrictions should be taken into account for patients:

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• Large meals should be avoided 2-3 hours before the study.
• It is not recommended to consume caffeine, alcohol and nicotine 12 hours before cardiography.
• All metal items such as jewelry, glasses, etc.must be removed before the study.
• During cardiography, the patient should be calm and calm, so exercise and stress should be avoided before the examination.

If the patient has a chronic illness or is taking medication, it is very important to inform the doctor who will do the cardiography.

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ECHINOCOCCUS AND ITS IMPORTANCE IN SURGERY (LITERATURE REVIEW)

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Abstract:

The article presents a review of the literature on one of the urgent problems of surgery. Echinococcal disease is widespread in many countries of the world. According to some estimates, more than 1 million people are currently affected by echinococcosis in the world, while the incidence in some endemic and non-endemic regions differs by more than 200 times [1]. In the last decade, there has been an increase in the incidence of echinococcosis and the expansion of the geographical boundaries of the disease. Despite the improvement of surgical intervention techniques using modern technologies, the introduction of various chemical and physical methods of influencing the parasite, the frequency of recurrence of echinococcosis remains high. However, this is the basis for a deeper study of the problem.

Keywords: liver echinococcosis, hydatid echinococcosis, surgical treatment, chemotherapy.

INTRODUCTION. The Republic of Uzbekistan is the most densely populated region in Central Asia. With the development of laparoscopic technique, surgical indications for laparoscopic treatment of hepatic echinococcosis (HE) have expanded and broadened. Until now, almost all published articles discuss the feasibility and superiority of laparoscopic treatment of liver echinococcosis, ignoring its specific treatment algorithm, which is extremely important for clinical surgeons [2].

Echinococcosis is a chronic disease in which solitary or multiple cystic masses develop in the liver, lungs, and much less frequently in other organs. The causative agent is the larval stage of Echinococcus granulosus [3].

Echinococcosis of the liver belongs to severe parasitic diseases and remains a serious medical and social problem in a number of countries around the world, including Russia. Rostov region is one of the endemic foci of echinococcosis. The prevalence of echinococcosis in the Russian Federation is 0.39 cases per 100 thousand inhabitants with its multiple excess in echinococcosis endemic areas [4]. As is known, echinococci belong to the family Taeniidae, genus Echinococcus, which includes several species. The most widespread and most important is the causative agent of human hydatid (cystic) echinococcosis - E. granulosus. Hydatid cysts of echinococcosis can be localised in any organ, but the most frequent, in 70-90% of cases, is liver echinococcosis [5]. The highest prevalence of human and animal echinococcosis has been reported in countries located in temperate climatic zones, including several countries in Eurasia, Australia, parts of the Americas, and North and East Africa [6-7]. Hydatid echinococcosis is widespread in many regions of the world, especially in several countries in Asia, Europe, North Africa. Among biohelminthoses in Kazakhstan, echinococcosis remains the most common parasitic chronic human disease [8]. To date, the diagnosis of focal liver masses, including echinococcosis, has been developed quite well. In many medical centres of our country visualisation of echinococcal cysts of the liver is performed with the help of ultrasound examination (ultrasound), computer and magnetic resonance tomography, which in the majority of observations allow to reveal the parasitic character of cysts. Diagnosis verification is also carried out on the basis of immunoserological reactions, such as indirect haemagglutination reaction, latex-agglutination reaction, scolex-precipitation reaction, and enzyme immunoassay. When several immunological tests are used simultaneously, their diagnostic efficiency exceeds 90%. There are probably some strain differences in the causative agent of alveolar echinococcosis E.multilocularis. In 2005, cases of invasion with alveolar-like parasites were described in some animals - intermediate hosts living in Tibet; it is believed to be a separate species of parasite - E. shiquicus, different from the classical E. multilocularis. Aggregation of data from different diagnostic studies made it possible to clarify the ranges of different echinococcoses. Unlike most parasitic diseases, unicameral or cystic

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echinococcosis caused by E. granulosus is most common in the Northern Hemisphere, although endemic territories are also known in the Southern Hemisphere. Human cases are more common in sheep production areas. Areas endemic for echinococcosis include Australia and New Zealand, Western Europe, Russia, the Middle East, the northern provinces of China and Japan. In the Americas, echinococcosis is most common in Argentina, Chile and Uruguay. Small foci of echinococcosis have been identified in Alaska and Canada [9].

Classification of surgical interventions for hepatic echinococcosis

Given the variety of surgical interventions for liver echinococcosis, a classification of surgical interventions is necessary for systematisation of data and comparative analysis of the literature, which, unfortunately, is currently missing. In different years many different classifications were proposed, the principles of their construction changed and accordingly different authors used different terms for the same surgical intervention. In domestic surgery the most widespread is the classification of surgical methods of echinococcosis treatment by B.V. Petrovsky et al. (1985) [10]. According to this classification, types of echinococcectomy and methods of eliminating the residual cavity are distinguished:

• Echinococcectomy:
–closed (with resection of the organ, with removal of the organ, perfect echinococcectomy);
– open (after puncture or dissection of the cyst).
• Methods of eliminating residual cavity:
– external drainage;
– elimination of the cavity (capitonage, sealing, etc.);
– combined methods.

A.N.Lotov, N.R.Chernaya et al. (2011) distinguish three main methods of traditional surgical treatment of echinococcosis [11]:

1) removal of echinococcal cyst elements without fibrous membrane (echinocolectomy);
2) removal of the parasite together with the fibrous sheath (pericystectomy);
3) removal of an echinococcal cyst by resection of the organ.

Accordingly, within each method there are also distinguished:

• perfect echinococcectomy - removal of the parasite without opening the chitinous shell;
• closed echinococcectomy - after removal of the parasite elements, suturing of the cavity of the fibrous capsule without drainage;
• semi-closed echinococcectomy - leaving a drain in the residual cavity after its capitonage;
• omentoplasty - tamponisation of the fibrous capsule cavity with a strand of the greater omentum;
• open echinococcectomy (marsupialisation).

There is no consensus in foreign literature on this issue either. In 2010, the Conciliation Commission of the World Health Organisation (WHO-IWGE) published a review of surgical treatment options for echinococcal cysts. A review of options for surgical treatment of echinococcal cysts was published, where the following surgical interventions are distinguished: closed total pericystectomy, which implies removal of the cyst with fibrous capsule without opening it, and open total pericystectomy, which means opening the cyst, exposure of the cyst contents to chemical agents, then removal of the contents and complete removal of all cyst shells with fibrous capsule. There is also partial cystectomy, which consists in opening the cyst, antiparasitic treatment of its contents and removal of the cyst shells with partial pericystectomy. Percutaneous interventions (PAIR: puncture, aspiration, injection, re-aspiration) are considered separately [12].

Several classifications of hepatic echinococcosis have been proposed. The most widespread is the classification of A.V. Melnikov, who distinguishes in the course of echinococcosis: - asymptomatic stage; - stage of progressive growth of the parasite; - stage of complications. F.G. Nazirov and F.A. Ilhamov (2005), who have vast experience in treating patients with echinococcosis, proposed their own detailed classification of this disease. Clinical and morphological classification of liver echinococcosis according to F.G. Nazirov and F.A. Ilhamov [13].

I. On morphology of larvocysts: 1. Echinococcusveterinorum; 2. Echinococcushominis; 3. Echinococcusacephalocystis.

II. According to the number of cysts: 1. single; 2. multiple: 3. with lesion of one lobe; 4. with lesion of both lobes.

III. According to the presence of combined lesions of other organs: 1. isolated liver damage; 2. combined lesions of other organs.

IV. According to the diameter of the cysts: 1. small (up to 5 cm); 2. medium (6-10 cm); 3. large (11-20 cm); 4. giant (21 cm or more).

V. Segmental localisation of the cyst (I-VIII segments**).**

VI. According to the peculiarities of cyst localisation: 1. marginal localisation; 2. cysts of the diaphragmatic surface; 3. cysts of the visceral surface; 4. intra-parenchymatous cysts; 5. cysts in the region of the liver gate; 6. cysts occupying the whole lobe of the liver.

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VII. According to the presence and type of complications: 1. uncomplicated form; 2. complicated form: 2.1. suppuration of the cyst; 2.2. breakthrough into the biliary ducts (type 1 - with a pronounced clinic. 2.3. breakthrough into abdominal cavity; 2.4. breakthrough into pleural cavity; 2.5. compression of bile ducts with mechanical jaundice; 2.6 portal hypertension; 2.7. calcification; 2.8. combined complications; 2.9. rare types of complications.

VIII. By origin: 1. primary; 2. recurrent; 3. implantation. This classification, despite some overloading, sufficiently reflects the main pathological processes occurring in the liver in echinococcosis.

TREATMENT METHODS FOR ECHINOCOCCOSIS

Difficulties in effective treatment of echinococcosis and high probability of its recurrence are explained by the lack of a universally accepted optimal variant of surgical treatment depending on the size and localisation of the cyst, the thickness of the fibrous capsule, the qualitative characteristics of the parasite itself, the lack of uniform methods of treatment of the cyst bed and the small selection of highly effective germicidal solutions. The qualitative characterisation of the parasite is nowadays almost decisive in the choice of the method of surgical intervention, as indicated by numerous studies [14].

In case of large and multiple echinococcal cysts, complete replacement of a lobe or anatomical half of the liver with cysts, their marginal and diaphragmatic location, and also in case of recurrent cysts, most surgeons prefer to perform liver resection, which is considered to be the most radical operation that gives the best guarantee that there will be no recurrence of the disease [15].

When choosing surgical treatment, the surgeon must decide at least three issues: the method of cyst removal, the relationship to the fibrous capsule, and the method of eliminating the residual cavity. It is known that the leading role in the development of recurrences of the disease is played by germinal elements of echinococcus, brood capsules with protoscolexes, fragments of germinative shells of larvocysts of the parasite and small acephalocysts. Therefore, an integral part of echinococcectomy and prevention of postoperative recurrences after removal of the chitinous sheath is reliable intraoperative antiparasitic treatment of the fibrous capsule wall [16].

In echinococcosis surgery, nothing is as controversial and controversial as the treatment of the fibrous capsule of the cyst. A number of investigators have found scolexes in the fibrous capsule, penetrating from the hydatids into its inner thickness and onto its outer surface. Consequently, in their opinion, any variant of echinococcectomy without removal of the fibrous capsule was a non-radical operation. Chemotherapy is not indicated for inactive non-growing cysts or calcified asymptomatic cysts. The daily dose of albendazole is 10-15 mg/kg in two doses; mebendazole is 40-50 mg/kg in three doses. Chemotherapy is recommended to be carried out continuously for 3-6 months [17]. With proper organisation of the diagnostic process, echinococcosis, in particular, liver echinococcosis, in most patients can be detected at an early stage of development, i.e. at small (up to 2-5 cm) cyst sizes. Tactics of treatment of the disease at these sizes of cysts in the liver have not been discussed until recently due to the lack of possibility to detect such cysts.

It should be noted that one of the threatening complications of hepatic echinococcosis is the cyst bursting into the abdominal cavity. For abdominal cavity sanation, antiparasitic solutions diluted tenfold are used to reduce their toxic and damaging effect on the peritoneum as opposed to those used for disinfection inside the cyst. Studies conducted to evaluate the disinfecting effect of antiparasitic solutions used in clinical practice have shown that 3% hypertonic sodium chloride solution and 0.04% chlorhexidine solution at 10-minute exposure do not provide complete disinfection of germinal elements of echinococcal cysts [18].

Capitonage, invagination of the residual cyst cavity, omental tamponade (omentoplasty) and aplatisation (abdominisation) are used to eliminate the residual cyst cavity. As a rule, the choice of the method of liquidation of the residual cavity depends on the size and location of the latter and the stiffness of its walls. For many years, the most common method of residual cavity liquidation was cyst marsupialisation, which is currently used only rarely.

The resolution of the XXII International Congress of the Association of Hepatobiliary Surgeons of the CIS countries summarised and formulated indications for percutaneous methods of treatment of liver echinococcosis: these are monovesicular cysts (I-II type according to Gharbi) without fibrous capsule calcinosis, patient's refusal from traditional intervention, severe somatic pathology. Regarding the size of cysts, small cysts (up to 3-4 cm) are subject to percutaneous puncture with antiparasitic treatment. In case of larger cysts, external drainage with mandatory removal of all germinative elements of the cyst is indicated. In cysts larger than 10 cm, a more restrained approach is appropriate [19]. According to the literature, the best results are observed with combined treatment (drug therapy and percutaneous puncture) of

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intraparenchymatous cysts larger than 5 cm. From the point of view of O.G. Skipenko, V.D. Parshin et al. (2011) the use of percutaneous puncture methods of treatment of liver echinococcosis is associated with a high risk of dissemination of the parasite in the abdominal cavity, the development of anaphylactic reactions and complications associated with puncture, so the authors prefer traditional methods of treatment [20-31].

Thus, the role of echinococcus in surgery is very relevant and requires a deeper study of the period from the onset of the disease to diagnosis.The prevalence of this disease in Central Asia, including Uzbekistan, makes surgeons more careful and requires many scientific studies.Undoubtedly, the use of the latest minimally invasive methods of treatment of echinococcus in surgery is extremely important and requires performing this procedure in the early stages of the disease.

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HOSPITAL-ACQUIRED INFECTIONS AND POSTOPERATIVE COMPLICATIONS IN SURGICAL DEPARTMENTS

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Abstract:

Objective of the Study:
To investigate the factors and conditions that contribute to the spread of hospital-acquired infections (HAIs) in medical facilities with a surgical profile.

Materials and Methods:
The research was conducted in the surgical departments of hospitals in Tashkent. The study materials included statistical data and reports on hospital-acquired infections collected between 2012-2023 from the Sanitary-Epidemiological Welfare and Public Health Service of the Republic and Tashkent city. Epidemiological and statistical research methods were used.

Results:
The epidemiological analysis of hospital-acquired infections (HAIs) identified 38 different nosological forms, ranging from mild skin and subcutaneous tissue infections to severe septic forms. Over 50% of these were postoperative wound infections, known as surgical site infections (SSIs).

Conclusion:
Among hospital infections in surgical hospitals, purulent-septic infections (PSIs) are the most prevalent, accounting for 84%. Of these, surgical site infections (SSIs) make up 51%, other hospital-acquired purulent-septic infections constitute 33%, acute respiratory viral infections account for 15%, and acute intestinal infections represent 1%.

Keywords: hospital-acquired infections, hospital purulent-septic infections, surgical site infections, risk factors.

Despite the adoption of international and national programs to combat nosocomial infections, as well as organizational measures to improve the functioning of medical and preventive healthcare institutions (MPHI) and the implementation of modern methods and tools for the prevention, diagnosis, treatment, and neutralization of harmful factors in the hospital environment (HE), nosocomial infections remain a central concern for global health science and practice (1,6,7,8,9).

The challenge of preventing and treating nosocomial infections, particularly surgical infections, continues to be one of the most urgent issues in hospitals worldwide. The incidence of nosocomial infections varies between 5% and 20% (2,3,4,5,10,11).

A study on nosocomial infections conducted under the auspices of the WHO in 55 hospitals across 14 countries revealed that, on average, 8.7% of hospitalized patients had nosocomial infections. In European countries, this figure was 7.7%, in the U.S. approximately 5%, and in Russia, the infection rate was 6.7% among hospitalized patients (4,6,9). According to reports from healthcare institutions in Uzbekistan, the frequency of nosocomial infections in hospitals is 2.2% (1,6,7).

The economic damage caused by nosocomial infections (NIs) annually amounts to $7.7 billion in the United States, 800 thousand marks in Germany, and approximately 5 billion rubles in Russia (6,9,12).

In Uzbekistan, nosocomial infections have become one of the primary reasons for significantly increasing the cost of hospital treatment, which is particularly problematic given the limited budgetary funding (1).

According to various estimates, nosocomial infections affect 5-10% of hospitalized patients and rank tenth among the leading causes of mortality worldwide (12).

Considering the high incidence of nosocomial purulent-septic infections (PSIs) in departments of

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various specialties and due to the fact that the epidemiological features of this issue have not been sufficiently studied in the Republic of Uzbekistan, we found it necessary to examine the significance of this pathology in surgical departments.

OBJECTIVE OF THE STUDY: To investigate the factors and conditions contributing to the spread of nosocomial infections in surgical healthcare facilities.

MATERIALS AND METHODS: The study was conducted based on the surgical departments of hospitals in Tashkent. The research materials included statistical data from the Republican Service of Sanitary and Epidemiological Well-being and Public Health (SES and PH) on nosocomial infections from 2002 to 2022. Epidemiological and statistical methods were employed in the study.

RESULTS AND DISCUSSION: Epidemiological analysis of nosocomial infections revealed 38 nosological units of nosocomial infections (NI). The rate of NI in the Republic of Uzbekistan is 2.2%. In the observed hospitals, the infection rate was 21.6% per 100 operated patients. Among nosocomial infections in surgical departments, purulent-septic infections (PSIs) accounted for the majority at 84% (Fig. 1).

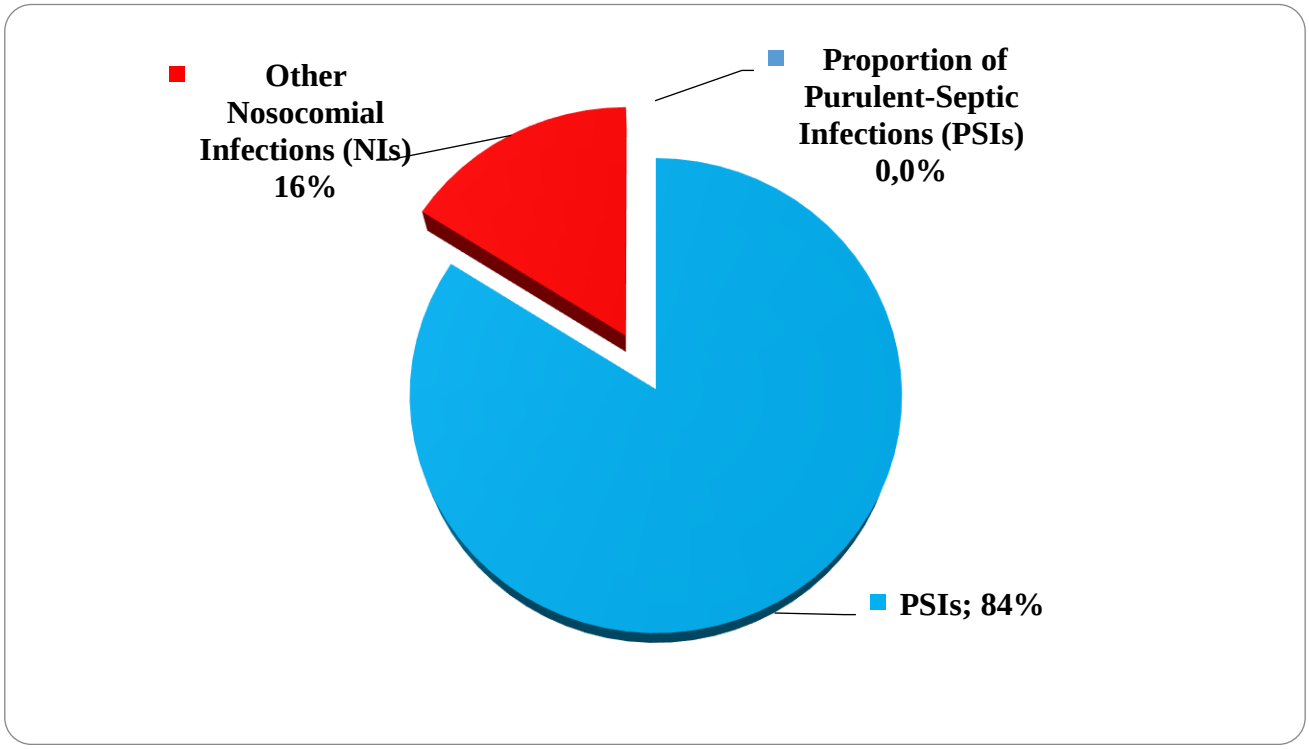

Figure 1. Proportion of Purulent-Septic Infections (PSIs) and Other Nosocomial Infections (NIs) in Surgery.

Among the identified cases of nosocomial infections, 38 different nosological forms were registered (ranging from mild skin and subcutaneous tissue infections to severe septic lesions). In the structure of PSIs, surgical wound infections account for 50.7%, other hospital-acquired purulent-septic infections account for 33.3%, acute respiratory viral infections account for 14.8%, and acute intestinal infections account for 1.2%. As shown, more than 50% of cases were classified as nosocomial postoperative wound infections, specifically surgical wound infections (SWIs) (Figure 2).

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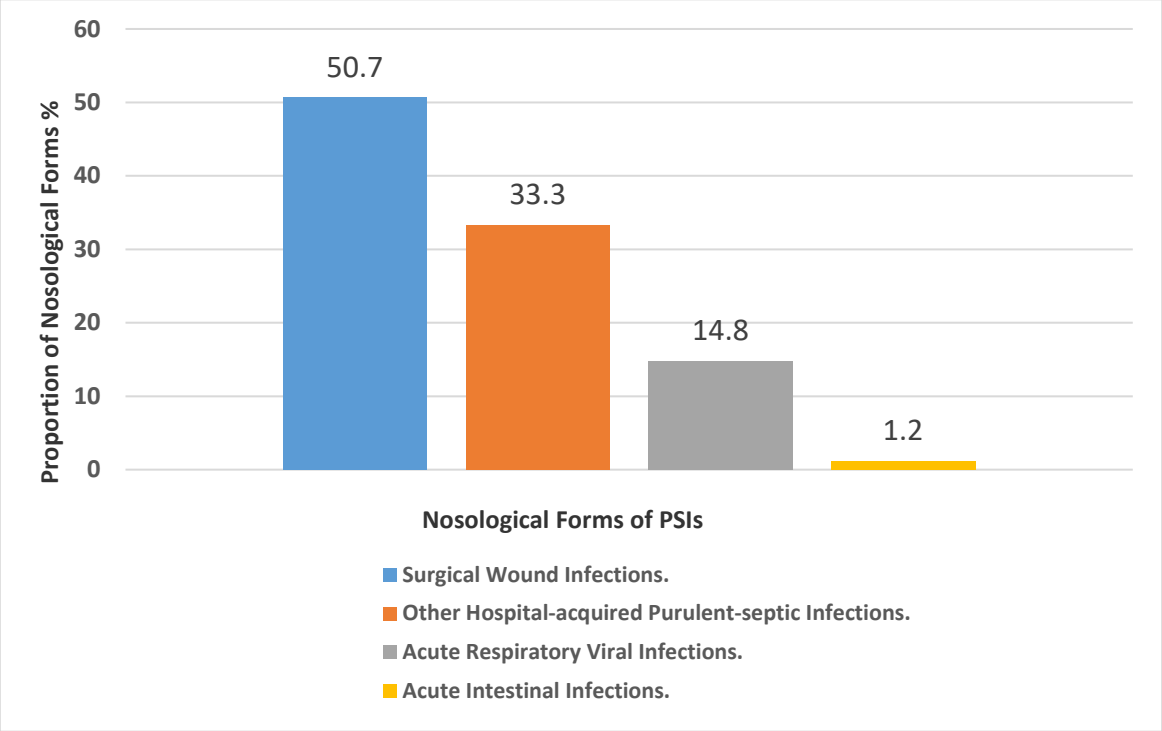

Figure 2. Proportion of Nosological Forms of Purulent-Septic Infections (PSIs) (in %)

Our study revealed that the incidence of surgical wound infections (SWIs) in the emergency surgery department was 3.3 times higher than in the elective surgery department. A significant difference was identified in the frequency of postoperative purulent complications, depending on the severity of the underlying disease and the complexity of the surgery performed. For example, in cases of severe acute appendicitis, the infection rate was 8.3 times higher than in milder forms of surgical disease. A similar pattern was observed in the elective surgery department, where the infection rate following reconstructive-plastic surgeries was 6 times higher than after other planned operations.

There was a notable increase in infection rates in both departments, rising by 3.1 to 7.5 times with longer operation durations.

The development of the SWI epidemic process varied between the emergency and elective surgery departments. In the emergency surgery department, 64% of patients with postoperative purulent complications developed these infections primarily within the early postoperative period, between the 5th and 8th days post-surgery. In contrast, in the elective surgery department, a delayed onset was observed, with 60.5% of surgical wound infections occurring after the 8th postoperative day. This delay is likely due to the prolonged hospital stay in the elective surgery department, where patients may continue to acquire wound infections during dressing changes and other procedures.

In pediatric surgical departments, the length of stay before and after surgery also affected the incidence of SWIs. Patients who stayed less than 5 days had a 4.4% rate of postoperative wound infections, while those with longer stays had an infection rate of up to 25%, which is 5.7 times higher.

The frequency of infectious complications is undoubtedly influenced by the type of surgical procedure. The risk of postoperative complications is minimal for clean surgeries (less than 2–5%) and maximal for so-called dirty surgeries, where it can reach 30–40%.

The epidemiological analysis of nosocomial infection incidence has identified key risk factors contributing to the development and spread of nosocomial PSIs, particularly surgical wound infections (SWIs), in the surgical departments studied. These risk factors for postoperative complications include multiple causes related to the patient's condition, the surgical procedure, and the pathogenicity of microorganisms. The key factors are:

- Emergency nature of the surgical intervention;
- Severity of the underlying disease;
- Complexity of the surgical procedure;
- Duration of surgery exceeding 30 minutes;
- Prolonged hospitalization prior to surgery;

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- Antibiotic therapy administered days before surgery;
- Length of the surgical procedure;
- Inadequate hemostasis;
- Surgical trauma;
- Postoperative stay in the intensive care unit (ICU);
- Presence of rubber drains in the surgical wound, increasing the risk of endogenous and exogenous wound infections;
- Postoperative hospital stay exceeding 5 days, which heightens the risk of infection;

The presence of these factors generally increases the likelihood of developing postoperative wound infections by 3.1 to 11.2 times.

Therefore, the primary focus in preventing nosocomial infections in surgical patients should be on minimizing the impact of these factors, which are common to surgical hospitals. These factors should be taken into account in the epidemiological surveillance system for nosocomial infections. The epidemiological analysis did not reveal any correlation between SWI incidence and patient age or the season during which surgery was performed. The occurrence of SWIs was sporadic in nature.

Additionally, in surgical hospital departments, there is a growing trend of bacteria developing resistance to antibiotics, antiseptics, and disinfectants. This resistance could significantly reduce the effectiveness of treatment and infection control measures. The frequency, levels, and spectrum of acquired resistance to antibiotics and antiseptics depend on the type of drug, the bacterial species and strain, and the specific type of surgical department.

CONCLUSIONS:

1. Among nosocomial infections in surgical hospital departments, purulent-septic infections (PSIs) account for the majority at 84%. The breakdown of PSIs is as follows: surgical wound infections make up 51%, other hospital-acquired purulent-septic infections comprise 33%, acute respiratory viral infections constitute 15%, and acute intestinal infections represent 1%.

2. The identified patterns of the epidemic process of nosocomial surgical wound infections (SWIs) in surgical hospitals provide a basis for developing proposals to improve the system of epidemiological surveillance and the main strategies for preventing these infections.

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STUDY OF THE EFFECT OF SOME ALKALOIDS ON THE CONTRACTILE ACTIVITY OF AORTIC SMOOTH MUSCLE CELLS

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Abstract:

The aim of the work was to study the effect of 1-O-acetylkarakoline, a derivative of the diterpenoid alkaloid karakolin, isolated from the plant Aconitum karakolicum, on the contractile activity of smooth muscle cells (SMC) of the rat aorta. Karakolin has a pronounced antiarrhythmic effect, which is determined by the presence of specific functionally important groups in its structure [3]. Thus, the replacement of the OH-group at the carbon atom C-1 of the lycoketonin skeleton of Karakolin with an acetyl group (Fig. 1) leads to a significant increase in antiarrhythmic activity of 1-O-acetylkarakoline [4]

Keywords: smooth muscle, sarcoplasmic reticulum, aorta, phenylephrine, Ca^{2+} channel, 1-O-acetylkarakoline, caffeine.

RELEVANCE. Ca^{2+} ions play a leading role in regulation of contractile and functional activity of cardiac muscles and smooth muscles of blood vessels, which ensure normal activity of cardiovascular system as a whole [1]. In this regard, disturbances in the regulation of Ca^{2+} homeostasis are the main cause of pathogenesis of a number of diseases of the cardiovascular system, including heart failure, arrhythmias, myocardial infarction, hypertension and strokes [2]. Therefore, one of the most urgent tasks of modern biophysics, pharmacology and medicine is to study and characterize the mechanisms of pharmacological regulation of Ca^{2+}-homeostasis and Ca^{2+}-transporting systems of cardiac and smooth muscles providing its maintenance. The aim of the work was to study the effect of 1-O-acetylkarakoline, a derivative of the diterpenoid alkaloid karakolin, isolated from the plant Aconitum karakolicum, on the contractile activity of smooth muscle cells (SMC) of the rat aorta. Karakolin has a pronounced antiarrhythmic effect, which is determined by the presence of specific functionally important groups in its structure [3]. Thus, the replacement of the OH-group at the carbon atom C-1 of the lycoketonin skeleton of Karakolin with an acetyl group (Fig. 1) leads to a significant increase in antiarrhythmic activity of 1-O-acetylkarakoline [4].

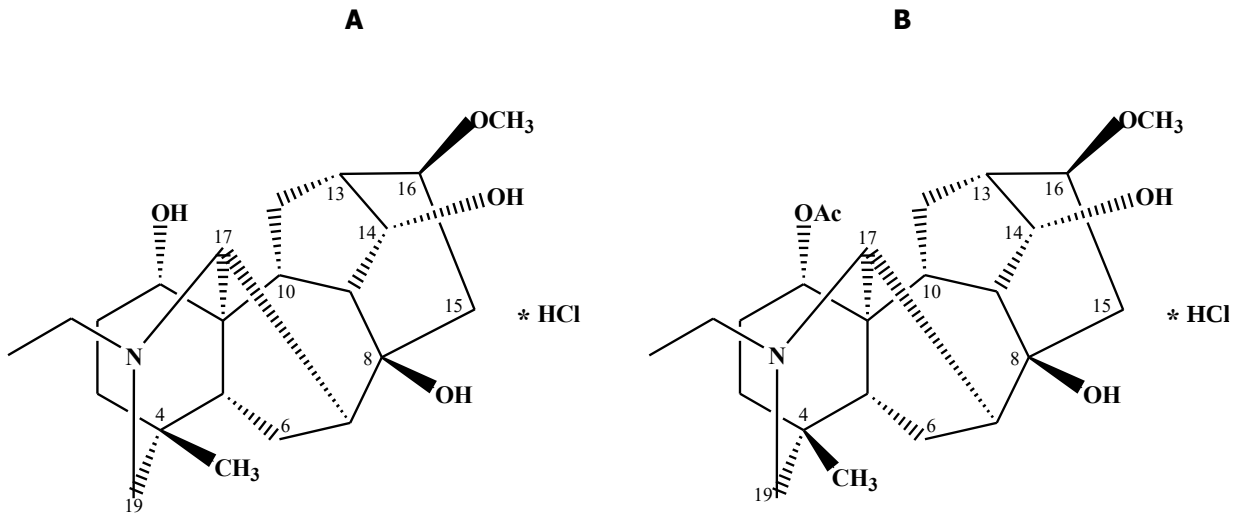

Figure 1. Chemical structure of diterpenoid alkaloids karakoline (A) and acetylkarakoline (B)

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RESEARCH METHODS AND MATERIALS. Isolated preparations of smooth muscle segments of aorta of white mongrel rats (200-250 g) were used in the experiments. The rats were slaughtered by cervical dislocation, the thorax was opened, the aorta was extracted and placed in Krebs physiologic solution of the following composition (mM): NaCl-120.4; KCI-5; $NaHCO_3$-15.5; NaH_2PO_4-1.2; $MgCI_2$-1.2; $CaCI_2$-2.5; $C_6H_{12}O_6$-11.5; pH 7.4. The aorta was cleared of adipose and connective tissue and cut into segments in the form of rings 3-4 mm wide. The dissected aortic segment was placed in a special experimental chamber of 5 ml volume, where it was fixed between the stem of the electromechanical transducer (FT.03, Grass, USA) and the chamber base using silver wire. The experimental chamber was perfused with oxygenated carbogen (95%O_2, 5% CO_2) Krebs solution at a constant temperature of 37˚C. Before the experiment, aortic segments were pre-stretched with a 1 g load and washed with saline for 60 minutes to achieve equilibrium. Contractions of aortic preparations were induced by applying PE (1 μM) or hyperkalemik solution (KCl, 50 mM) to the experimental chamber. Calcium-free solutions were also used in the experiments, for which Ca^{2+} ions were excluded from the Krebs solution and EGTA (1 mM) was added to bind their traces. The contractile activity of aortic preparations was recorded using a PIIT amplifier (Grass, USA) and an Endim 621.02 recorder (Germany). Statistical data processing was performed using OriginPro 7.5 program (OriginLab Corporation; USA). The contraction amplitude was expressed as % of the maximum contraction (taken as 100%) induced by phenylephrine (PE) or hyperkalemic solution and calculated as the arithmetic mean for 4-5 different experiments. Statistical significance of differences between control and experimental values was determined for a series of data using paired t-test. Values of $p < 0.05$ indicate statistically significant differences.

RESULTS AND THEIR DISCUSSION. Previously, we found that the diterpenoid alkaloids 1-O-acetylkarakoline and karakoline effectively relax rat aortic preparations precontracted with phenylephrine and hyperkalemic solutions [5]. Therefore, the aim of the present work was to further characterize the mechanism of relaxant action of 1-O-acetylkarakoline.

To further characterize the mechanism of relaxant action of 1-O-acetylkarakoline (1-O-AK), we studied its effects on contractions of rat aortic preparations induced by the selective α-adrenoreceptor agonist phenylephrine, in the development of which Ca^{2+} ions entering the SMCs not only through potential-dependent, but also through receptor-regulated Ca^{2+}channels, and also released from the sarcoplasmic reticulum (SR) participate [6,7]. In these studies, we found. that 1-O-AK and under conditions of PE-induced contracture effectively relaxes rat aortic preparations. The relaxant effect of 1-O-acetylkarakolin was also dose-dependent, and at its concentration of 20 μM it caused relaxation of the aortic preparation by 24.5 ± 3.2%, and maximum relaxation up to 81.1 ± 4.1% was observed at its concentration of 150 μM. The magnitude (concentration воз. 50% of maximal effect) of EC_{50} of 1-O-acetylkarakolin under these conditions was 41.9 ± 4% μM. At the same time, the relaxant effect of 1-O-acetylkarakolin, under conditions of PE-induced contracture, was also observed in calcium-free solutions, the development of which is mainly provided by Ca^{2+} ions released from SR. Under these conditions, PE induced contraction of the rat aortic preparation, which was 70.4±4.1% less than the contraction induced by PE in the presence of Ca^{2+} ions. Addition of 1-O-acetylkarakolin under these conditions resulted in an additional 23.2 ± 3.8% reduction in contraction amplitude (Figure 2.). The results of these experiments indicate that the relaxant effect of 1-O-acetylkarakolin, in conditions of PE-induced contracture, is mainly due to its effect on the entry of Ca^{2+} ions into SMCs through receptor-controlled Ca^{2+}channels of plasmalemma and on the release from SR. It should be noted that the relaxant effect of karakolin in conditions of PE-induced contracture, as well as in conditions of KCL-induced contracture, was less pronounced in comparison with the effect of 1-O-acetylkarakolin.

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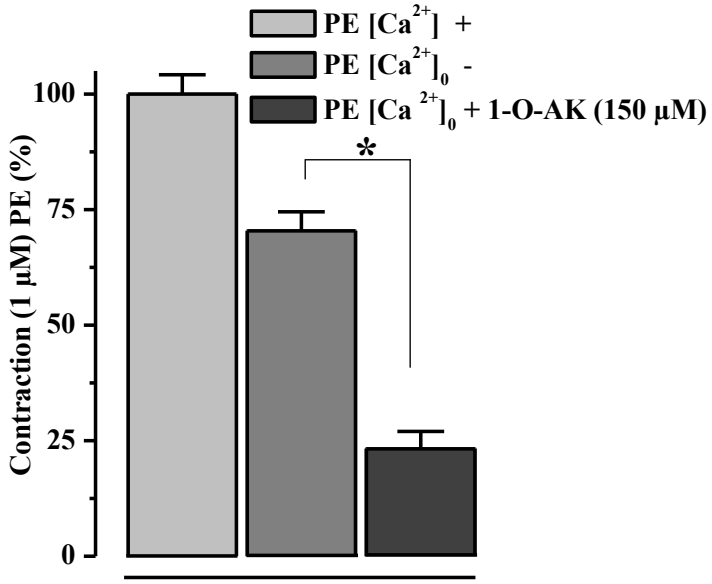

Figure 2. Effect of 1-O-acetylkarakoline on contractions of rat aortic preparations induced by phenylephrine. On the ordinate axis is the strength of aortic contraction expressed as a percentage of the control obtained by the action of 1 µM phenylephrine and taken as 100%. (P<0,05; n=5).

The results of these experiments provide convincing evidence that the relaxant effect of the alkaloid 1-O-AK is realized mainly as a result of its influence on Ca^{2+}-transporting systems of SMCs controlled by α-adrenoreceptors and related intracellular signaling cascades. It is known that stimulation of α-adrenoreceptors, inositol-1,4,5-triphosphate (IP_3R), is accompanied by activation of Ca^{2+}channels of plasmalemma and sarcoplasmic reticulum [6]. At the same time, the release of Ca^{2+} ions from SR via IP_3R contributes mainly to the increase of $[Ca^{2+}]_i$ and activation of SMC contraction. Taking this into account, we studied the effect of the investigated alkalod on the effects of caffeine, which affects the contractile activity of SMCs by specifically modifying $[Ca^{2+}]_i$ [8]. In particular, caffeine activating RyR can increase the release of Ca^{2+} ions from SR and stimulate the contraction of SMCs [9]. At the same time, caffeine can interact with IP3R and inhibiting it, suppresses the release of Ca^{2+} ions from SR and causes smooth muscle relaxation [10].

Taking into account these peculiarities of caffeine action, we studied the effect of 1-O-AK on contractions of aortic preparations induced by caffeine in the absence of Ca^{2+} ions in the incubation medium. As can be seen in Fig. 2, addition of caffeine to the solutions containing Ca^{2+} ions induced a contraction of aortic preparations, which was 67.5 ±4.1% of the contraction induced by phenylephrine. When Ca^{2+} ions are excluded from the incubation medium, caffeine-induced contraction of aortic preparations decreases to 33.3±3.4% of the control obtained in the presence of Ca^{2+} ions. Addition of the alkaloid 1-O-AK (150 µM) under these conditions observed an additional reduction in caffeine-induced contraction to 21.1 ± 4.4%, from control (Fig.3).

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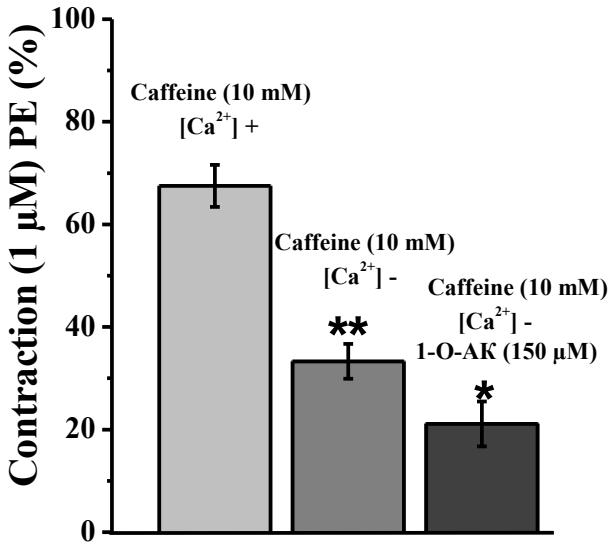

Figure 3. Effect of 1-O-acetylkarakoline on contractions of rat aortic preparations induced by caffeine. On the ordinate axis is the strength of aortic contraction expressed as a percentage of the control obtained by the action of 1 μM phenylephrine and taken as 100%, ($P<0,05$; n=4).

The results of these experiments indicate that 1-O-AK suppresses caffeine-induced contractions of aortic preparations. Taking into account that this effect of the studied alkaloid was detected under the conditions of absence of Ca^{2+} ions in the incubation medium, in which their entry into SMCs from the extracellular medium is excluded, we can assume that it is due to the effect of the alkaloid on the release of Ca^{2+} ions from SR via RyR or IP_3R.

Thus, analysis of the data obtained in these experiments shows that the alkaloid 1-O-AK effectively relaxes rat aortic preparations precontracted by the α-adrenoreceptor agonist phenlephrine. Taking into account that contractions induced by this antagonist are mainly caused by activation of Ca^{2+} ions release from SR via IP_3R, we can conclude that the relaxant effect of the studied alkaloid is caused by suppression of Ca^{2+} ions transport at SR level.

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EPIDEMIC PROCESS IN HOSPITALS HIV INFECTIONS IN THE OF TASHKENT

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Abstract:

Nosocomial HIV infection refers to infectious diseases that have been transferred or have been arisen in hospital conditions (the sum of infections recorded and those that occurred in the hospital).

Nosocomial infection is one of the most severe forms. Therefore, serious attention needs to be paid to nosocomial viral infections. This article provides information on studying the mechanism of development of the epidemic process of nosocomial HIV infection in medical units in the city of Tashkent and improving its prevention.

Keywords: *Nosocomial HIV infection, morbidity, infectivity, prevalence.*

RELEVANCE. Nosocomial infections (NI) are an urgent problem in modern medicine worldwide, including our country. No less than 5-20% of patients admitted to medical institutions are infected in hospitals. Currently, under NI, diseases associated with the provision of medical services are understood not only to patients in hospitals but also in all healthcare facilities.

In 2020, according to the World Health Organization (WHO), the spread of HIV infection through hemocompatibility was observed in healthcare facilities (HCF). Nosocomial hemocompatible HIV infections, viral hepatitis B and C, cause socio-economic damage to the healthcare system [2, 4, 7, 11].

From 1981 to 2019, a total of 85 million people were infected with HIV. By 2019, the number of deaths reached 40.0 million [1, 2].

In 2019, the number of people infected with HIV in Russia reached 1 million. The number of new infections amounted to 94,668 people, 36,868 cases out of which resulted in a fatal outcome.

According to statistical data, men aged 30-40 (4%) are more affected by HIV infection, while women aged 30-30 (2-3%) suffer the most [6,12].

It has been established that HIV infection is unevenly spread among different administrative regions and population groups. The duration of the latent period of HIV infection, the course of the disease in chronic conditions, and the formation of chronic viral transmission ensure the prolonged preservation of the patient's danger to others.

This situation indicates that the epidemic process persists, and the pathogen remains as a biological species, meaning that patients and virus carriers cause new cases of the disease through various natural and artificial modes of transmission (e.g., medical procedures). In addition, there is an increase in the number of fatal outcomes due to complications caused by the disease (the addition of opportunistic infections, etc.) in HIV-infected individuals [9,10].

RESEARCH GOAL. To study the mechanism of the epidemic process development in nosocomial HIV infection in Tashkent.

THE MATERIAL FOR THE INVESTIGATION included the reported data on HIV infection incidence from the republican and regional centers for AIDS prevention and the results of HIV testing in diagnostic laboratories. Retrospective and operational epidemiological research methods were used.

RESEARCH RESULTS AND CONCLUSIONS. As a result of the study, the following data was established. Taking into account new cases of HIV infection in our Republic, the number of people living with HIV infection is increasing every year. According to statistical data, men aged 30-40 (4%) are more susceptible to HIV infection, while women aged 30-35 (2-3%) are the most affected.

In 2022, the number of people with HIV in Uzbekistan was about 45 thousand, with the majority of infected individuals being patients aged 30 to 49. In the country, as worldwide, the virus is more often transmitted through sexual contact (74.3%). However, overall, the epidemiological situation with HIV in Uzbekistan is stabilizing.

According to the results of a retrospective analysis of HIV incidence in Tashkent from 1987 to 2020, it was noted that there was a slight increase in incidence from 1987, with only 76 cases identified. Over 18 years, this number increased from 295 to 468 cases, respectively (2002-2020). In 2006, there was a slight increase in incidence, with 1174 cases of HIV-infected individuals registered, and in 2015, there was a slight decrease, with 652 cases of HIV-infected individuals identified.

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The current situation with HIV infection in 2020, 468 cases of HIV infection were registered in Tashkent by administrative territories, which is 173 or 2 per cent more than in 2002

The current situation with HIV infection is as follows. In 2020, by administrative territories, 468 cases of HIV infection were registered in Tashkent, which is 173 cases or 2 per cent more than in 2002.

In 2020, an increase in cases of HIV infection was noted in the following administrative territories of Tashkent: in Yakkasaray district - 33 cases, in Yunusabad district - 48 cases, in Shaykhontokhur district - 38 cases, in M.Ulugbek district - 19, in Chilanzar district - 37, in Yashnabad district - 33, in Sergeli district - 27, in Olmazar district - 25, in Mirabad district - 13, in Bektemir district - 18, in Uchtepa district - 12 cases. Compared to 2019, in 2020, cases of HIV infection increased in the following administrative territories: in Chilanzar district by 15 cases, in Yashnabad district by 28 cases, in Sergeli district by 25, in Olmazar district by 18, in M. Ulugbek district by 34, in Mirabad district by 44, in Uchtepa district by 33 cases, in Yakkasaray district by 15, and in Yunusabad district, cases of HIV infection decreased to 6 infected individuals compared to the same period last year (Figure 2).

When analyzing HIV-infected individuals by gender, it was found that men accounted for 290 individuals (62%), and women - 178 individuals (38%). An increase in cases of HIV infection among men is noted in relation to the total number of registered HIV-infected women. The increase is observed in the following administrative territories of the city: in Shaykhantakhur district - 75.6%, Chilanzar - 69.2%, M. Ulugbek - 67.9%, Sergeli - 57.7%, and in Yakkasaray district - 56.3%.

Currently, the main modes of transmission of the human immunodeficiency virus are sexual, parenteral, and vertical (from mother to child). In 2023, 70.3% of HIV infection spread through sexually transmitted diseases.

The number of HIV infection cases through blood transfusion and its products has significantly decreased worldwide; however, the risk of infection through this route still exists. Every blood donor should undergo an HIV test to prevent infected blood from entering another organism. Unfortunately, not all health services include immunodeficiency virus testing of donated blood for the human.

HIV infection through blood (parenteral route of infection transmission) occurs when using shared non-sterile syringes and needles during drug injection, using non-sterile medical instruments during piercing or tattooing; when transfusing infected blood (if, due to negligence of medical personnel, it has not been tested for HIV); If we look at the parenteral route through medical procedures, it accounts for 6.5% (Fig. 1).

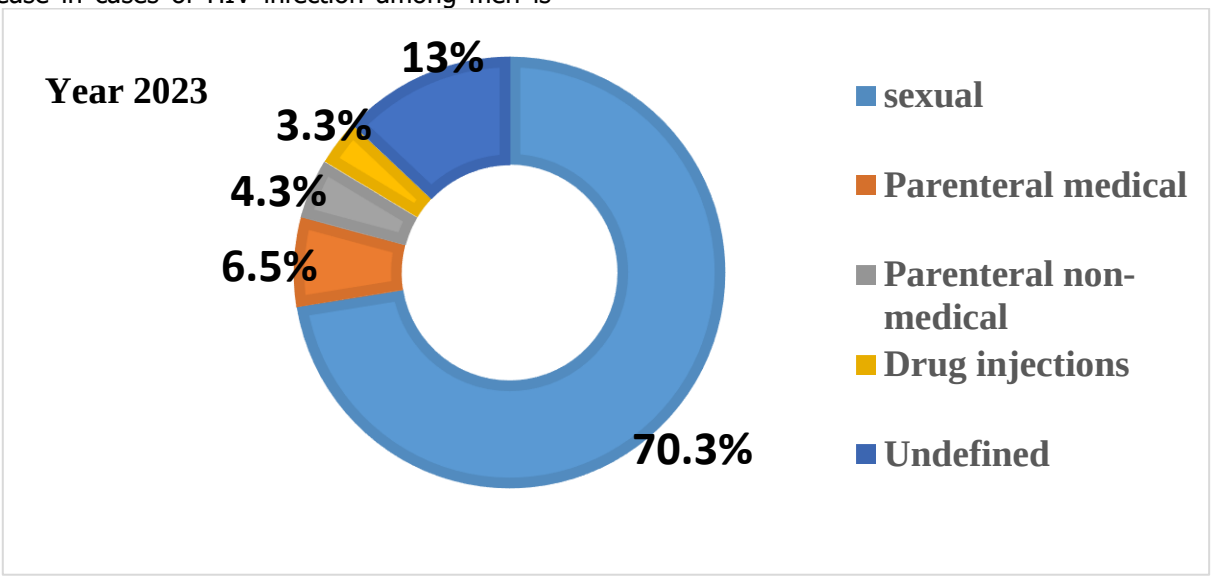

Figure 1. Analysis of the transmission routes of HIV infection in Tashkent (2023).

There is an increased risk of occupational infection among healthcare workers during the provision of medical care. Infection of healthcare workers can occur during therapeutic and diagnostic procedures, as well as during the collection and disposal of wastes from healthcare facilities in case of injuries (cuts, injections, skin damage by bone fragments, etc.) and contamination of the skin and mucous membranes with biological fluids of patients containing HIV.

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In Tashkent in 2020-2021, cases of HIV detection and suspicion of transmission through parenteral medical procedures were identified: in 2020, a total of 419 people with HIV infection were registered for 11 months (incidence rate - 16.4);
- including a total of 20 children under the age of 18 (incidence rate - 2.6);
- The total number of people diagnosed with HIV - individuals suspected of infection through parenteral medical procedures - 25 (6.0%);
- In particular, the disease in children under the age of 18 with suspicion of infection through parenteral medical procedures - 12 people;
25 people suspected of HIV infection through medical procedures sought medical care 34 times and received treatment 43 times in both inpatient and outpatient settings.

In 2021, a total of 472 people with HIV infection were registered for 11 months (incidence rate - 17.8);
- including 20 children under the age of 18 (incidence rate - 2.6);
- The total number of people diagnosed with HIV - individuals suspected of infection through parenteral medical procedures - 28 (5.9%);
- In particular, the disease in children under the age of 18 with suspicion of infection through parenteral medical procedures - 10 people;
28 people suspected of HIV infection sought medical care at least 50 times in healthcare facilities for both inpatient and outpatient services.

There is an increased risk of occupational infection among healthcare workers during the provision of medical care. Infection of healthcare workers can occur during therapeutic and diagnostic procedures, as well as during the collection and disposal of medical waste in case of injuries (cuts, injections, skin damage by bone fragments, etc.) and contamination of the skin and mucous membranes with biological fluids of patients containing HIV.

In recent years, there have been significant changes in the structure of occupational diseases among healthcare workers. It can be observed that the incidence of HIV infection among healthcare workers has increased compared to previous years.

In the dynamics of HIV transmission during parenteral medical procedures in Tashkent, the indicator of transmission through needles and systems during medical procedures increased by 65 cases (9.8%) in 2021 compared to 2016.

It was noted that the probability of contracting HIV infection during surgery has increased by 20 (4.2) in 2020 over the last 10 years.

When analyzing HIV codes in Uzbekistan, the majority of cases are identified under code 113 (i.e., based on clinical indications). In 2022, 1437 cases (35.7%) of infection were identified under this code. Among individuals in sexual contact with HIV-infected persons, 466 cases (11.6%) were identified under code 101. Under code 102, among patients with venereal diseases, 48 cases (1.2%) were identified, and infection was detected in 7 people (0.2%) with promiscuous sexual relations.

Drug use is a major factor in the spread of HIV/AIDS. The likelihood of HIV infection through the use of one syringe in a single injection is 5%.

In 2022, consumers of injection drugs accounted for 3.3% of the total registered HIV-infected individuals.

The above data on HIV infection in vulnerable groups indicate the need for further strengthening preventive measures, particularly conducting health education and increasing HIV testing coverage among these populations.

IN CONCLUSION, it can be stated that raising the level of knowledge among the population and healthcare workers about hospital-acquired HIV infection is crucial for early detection and prevention of the epidemic spread of the disease. This, in turn, requires an increase in the awareness of healthcare workers about HIV infection.

Currently, one of the effective ways to prevent the spread of HIV/AIDS infection in hospital settings is the development, improvement, and implementation of highly effective preventive measures for these diseases in medical practice.

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THE ROLE OF REMOTE DIAGNOSTICS IN MEDICINE.

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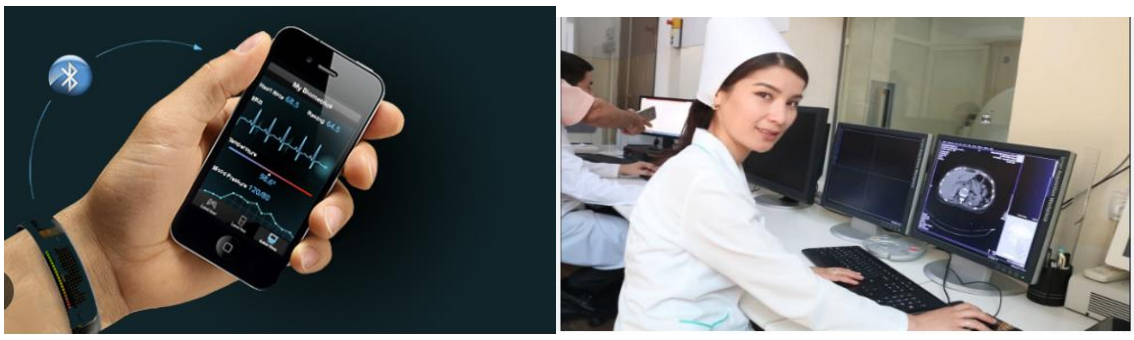
Abstract:

The work presents information about the technology of remote diagnostic systems, highlighting the stages of allowing you to identify various diseases and assess the patient's condition in advance without direct contact with the doctor. The principle and limitations of multichannel cardiography are looked at.

Keywords: Remote diagnostics, multichannel, cardiography, heart, neurology, coronary, cardiomyopathies, arter, cardiologist.

Remote diagnostics, intelligent monitoring and disease prediction systems are based on the use of machine learning algorithms and large-scale data analysis. They allow you to collect information about the state of the human body, analyze it and determine the relationship between various health indicators.

Remote diagnostic systems use a variety of data to determine the state of technology or human health.



Picture-1. Types of remote treatment

Some of this information may include:

•Measurement of physiological indicators such as body temperature, pulse, pressure and breathing;

* Results of examination of blood, urine and other biological materials;

* Images obtained using medical equipment such as X-ray and ultrasound machines;

• Equipment performance data such as temperature, pressure, speed and vibration;

• Information about hardware settings and parameters.

These data are processed and analyzed to identify potential problems or abnormalities. The results can be used to prevent equipment failure or to diagnose diseases.

Remote diagnostic systems allow you to identify various diseases and assess the patient's condition in advance without direct contact with the doctor.

Some diseases that can be detected using such systems include: 1. Heart disease: with remote diagnostic systems, it is possible to monitor the heart rhythm, measure blood pressure and detect cardiac dysfunction.

2. Respiratory diseases: remote diagnostic systems allow you to control respiratory activity and detect the presence of diseases such as asthma or chronic obstructive pulmonary disease.

3. Neurological disorders: with remote diagnostic systems, it is possible to assess the nervous system and determine the presence of neurological disorders such

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as Parkinson's disease or epilepsy. 4. Dermatological diseases: remote diagnostic systems allow you to visually assess the condition of the skin and determine the presence of various dermatological problems, such as eczema or psoriasis.

5. Endocrine disorders: with remote diagnostic systems, it is possible to control hormone levels and detect the presence of endocrine disorders such as diabetes or hypothyroidism.

Picture-2. Types of sickness

However, it should be noted that remote diagnostic systems do not replace full medical advice and diagnostics. They serve as an auxiliary tool for pre-checking and monitoring the patient's condition. If any abnormalities are found, it is recommended to consult a doctor for a more accurate diagnosis and treatment.

Multichannel cardiography is a cardiac examination method that allows the electrical activity of the heart to be recorded at multiple points using multiple electrodes at the same time.

Picture-3. Exterior of electrocardiograph

Multichannel cardiography (MEKG) allows simultaneous recording of electrical activity of the heart at different points in the chest, allowing for a more complete picture of cardiac activity and detection of disorders that can be missed in a regular ECG. In addition, the Megg allows a detailed analysis of changes in the electrical activity of the heart during exercise or in the conditions of everyday life. In general, the Megg is a more accurate and informative method of examining the heart than the normal ECG.

Multichannel cardiography (ICC) is one of the most common methods of examining the heart. With its

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help, many heart diseases can be detected, for example:• Koroner arter kasalligi (SAPR)
•Cardiac arrhythmias
• Cardiac conduction disorders
• Heart valve diseases
• Cardiomyopathies
* Congenital heart defects
ICCprovides a more accurate and detailed account of cardiac activity than simple single-channel cardiography.Inaddition, it can be used to control the treatment of heart disease and assess the effectiveness of therapy.The multichannelcardiography(ICC) procedure is performed using a special apparatus called a cardiograph.During the procedure, the patient is placed electrodes in the chest, which record the electrical activity of the heart. Then the patient is offered to lie on the couch, after which the car begins to register information about the activity of the heart within a few minutes. These data are then analyzed by a cardiologist to identify possible disturbances in cardiac activity. The multichannel cardiography procedure is safe, non-invasive and does not cause pain.
Before performing multichannel cardiography, the following restrictions should be taken into account for patients:
• Large meals should be avoided 2-3 hours before the study.
• It is not recommended to consume caffeine, alcohol and nicotine 12 hours before cardiography.
• All metal items such as jewelry, glasses, etc.must be removed before the study.
• During cardiography, the patient should be calm and calm, so exercise and stress should be avoided before the examination.
If the patient has a chronic illness or is taking medication, it is very important to inform the doctor who will do the cardiography.

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ASSESSMENT OF THE EPIDEMIOLOGICAL PICTURE OF DENTAL ANOMALIES AND DEFORMATIONS IN CHILDREN

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Abstract:
the analysis of the results of cephalometric examinations of 801 patients under the age of 18, who were diagnosed with teeth-jaw anomalies and deformities, is presented.

Keywords: Anomaly, deformity, anemia, endocrine diseases, trauma, orthodontic disease, maxillofacial pathology.

INTRODUCTION: Large-scale scientific research is being conducted worldwide to determine the prospects for early prediction of anomalies and deformities of the dentofacial system in children during orthodontic treatment, as well as to improve the effectiveness of diagnosis, treatment, and preventive measures (Bril V.E., Shitova A.V., Tishenko V.N. 2013). Scientific research is being conducted to develop an approach to early diagnosis and treatment of dentofacial anomalies, achieve a stable aesthetic outcome in the treatment of orthodontic patients, and reduce the number of relapses (Averyanov S.V. 2016). However, existing diagnostic methods are insufficient, which creates a strong need for additional research methods (Aleshina O.A. 2020). Among these methods, cephalometric examination is crucial for the correct assessment of anomalies and deformities, as well as for their diagnosis and treatment.

THE PURPOSE OF THE STUDY is to investigate the medico-social aspects of dentofacial anomalies and deformities in children of different ages and to develop a new approach to their primary prevention.

MATERIALS AND METHODS: Children's anomalies lead to facial deformities, disharmony in the development of facial skeleton, and negatively affect facial aesthetics. Pathological conditions encountered in sick children were studied using kefolametric methods.
Currently, the cephalometric method of studying facial skeleton and soft tissues is widely used. This allows for the most reliable identification not only of the structural features of the area under study, but also of the most characteristic changes in the maxillofacial region, accompanied by pathological processes.
The primary function of cephalometry is to comparatively study changes in the face of sick children, its width, symmetry, length, lip junction, chin shift, and determine the degree of changes.
Clinical material included data from 801 children under 18 years of age diagnosed with dentofacial anomalies and deformities.
Of the 801 patients examined, 361 (45.1±1.8%) were boys and 440 (54.9±1.8%) were girls.
The material is the results of the examination of the examined children, the width (zy-zy) and height (n-me; n-sn; sn-me) of the front of the face were calculated, as well as the morphological facial index (MFI).
The average face width was 110.2±0.3, the average height was 111.3±0.3 for n-me, 55.3±0.5 for n-sn, and 56.7±0.2 for sn-me. Considering that the face is narrow with an MFI of 104 or more, medium with 97 to 103, and wide with a MFI of 96 or more, the study showed that the width of the patients' faces was average, with an average MFI of 101.6±0.3.
When the patient's face was examined from the front (fas), it was symmetrical in the majority of them (83.9±1.3%, n=672), while the face of 129 patients was asymmetrical (16.1±1.3%), respectively. The ratio of symmetrical and asymmetrical faces was 1:5.21, which favored the symmetrical face. The chin position is also important in assessing facial posture, therefore the position of the chin was also measured. A total of 738 (92.1±0.9%) patients had a normal chin position, 35 (4.4±0.7%) had a right chin shift, and 28 (3.5±0.6%, n=28) had a left chin shift. It turned out that no changes in chin arrangement were found in the majority of the subjects examined.
The expression of the face on the beard fold was also measured, allowing for the identification of the front of the face. It was found that 495 (61.8±1.7%) of the examined sick children exhibited this expression, while 306 (38.2±1.7%) of the sick children did not exhibit it on the beard fold of the face. The 1.62 times difference between them showed that this parameter is diagnostically significant, allowing for the evaluation of the anterior side of the patient's face in the studied pathology.
One of the features characterizing the appearance of the anterior side of the face was the confluence of the lips, which was observed in 82.4±1.3% (n=660) of sick children, while the absence of confluence of the lips, which manifested as a pathological feature, was found in 141 (17.6±1.3%) patients. In this case, the normal manifestation was found to be 4.68 times more common than the pathological manifestation (Fig. 1).

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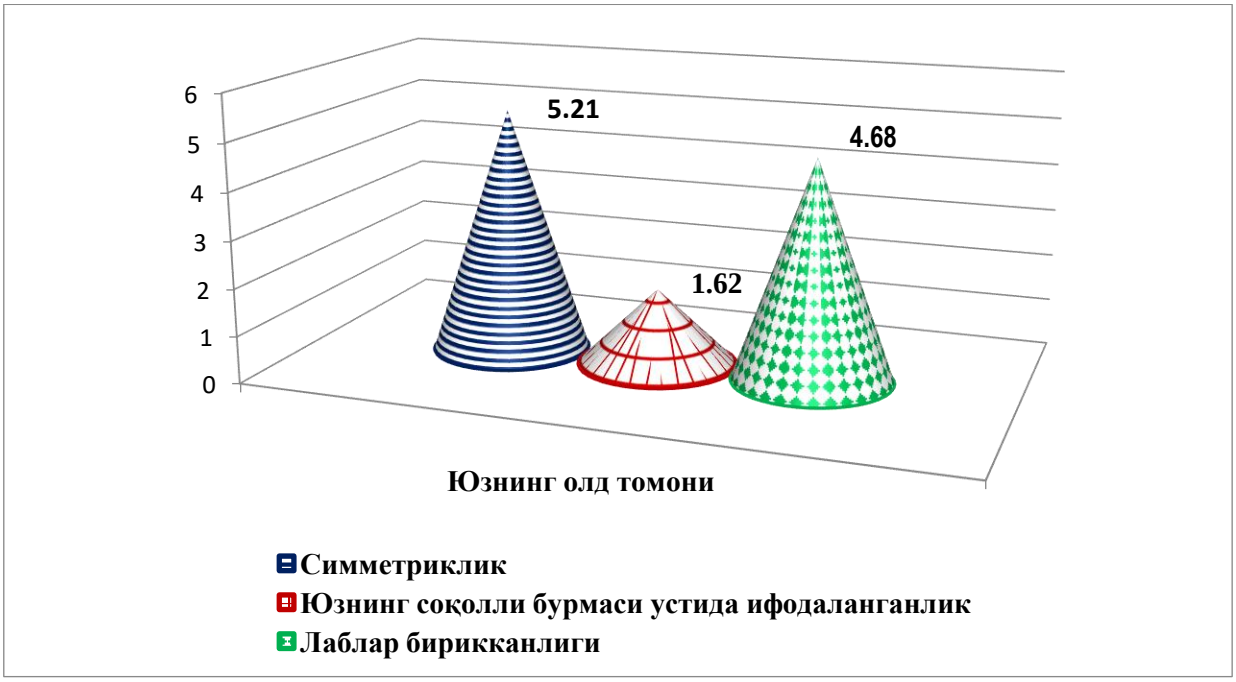

The ratio of differences in the appearance of the anterior face (fas) from normal indicators of pathological conditions, times.

Thus, according to the results of cephalometry in children diagnosed with dentofacial anomalies and deformities, the width of the face (zy-zy) and its height (n-me; n-sn; sn-me) were within the normal limits, no sharp changes were detected, while the MFI was 101.6±0.3, corresponding to the average width of the face, with facial symmetry impaired in 16.1% of sick children, chin shift to the right (4.4%) and left (3.5%) in a small number of children,

Therefore, pathological manifestations of facial appearance disturbances were not clearly expressed.

Along with the frontal aspect of the face (fas), its lateral aspect (profile) was determined and measured using standard methods, individual indicators for each sick child were entered into maps and taken into account when conducting therapeutic measures. It was found that the side of the face was straight, protruding, and sunken. In our case, the right side of the face was observed in 351 (43.8±1.73%) children, while the protruding side was observed in 131 (16.4±1.3%) children.

It is noteworthy that more than half (56.2%) of the patients examined showed deviations from normal profile type indicators, which was assessed as the impact of the studied pathology on these children. This revealed the diagnostic significance of cephalometry and its role in determining therapeutic measures.

One of the other indicators reflecting the appearance of the face of sick children from the side is the assessment of the position of the upper and lower lips. The upper lip is swollen, sunken, or straight. It has been proven that changes in the lips are observed in dentofacial anomalies and deformities. Therefore, it is important to assess the degree of lip changes in this pathology, which is based on identifying changes in the facial profile.

A study of the condition of the upper lip revealed that 307 children (38.3±1.7%) had a correct condition during the examination period, with no pathological manifestations, however, in 360 children (44.9±1.8%) it was swollen, and in 134 children (16.7±1.3%) it was deep, both cases showed asymmetry of the upper lip. Thus, practically 2/3 of the children had a pathological condition on the upper lip.

A similar kefalametric study was conducted on the condition of the lower lip. The results obtained showed that the changes in these parameters were identical to the trend of changes in the upper lip parameters, but differed in the intensity of changes (Fig. 2).

Another facial profile indicator is the position of the chin. In this case, the correct location was found in 49.4±1.0% of sick children (n=396), while progenia was significantly lower than the correct position by 2.98 times (16.6±1.3%, n=133, $P<0.001$). Retrogenia was observed somewhat more frequently, however, it was found to be statistically significantly less common by 1.45 times compared to the correct case (34.0±1.7%, n=272, $P<0.05$).

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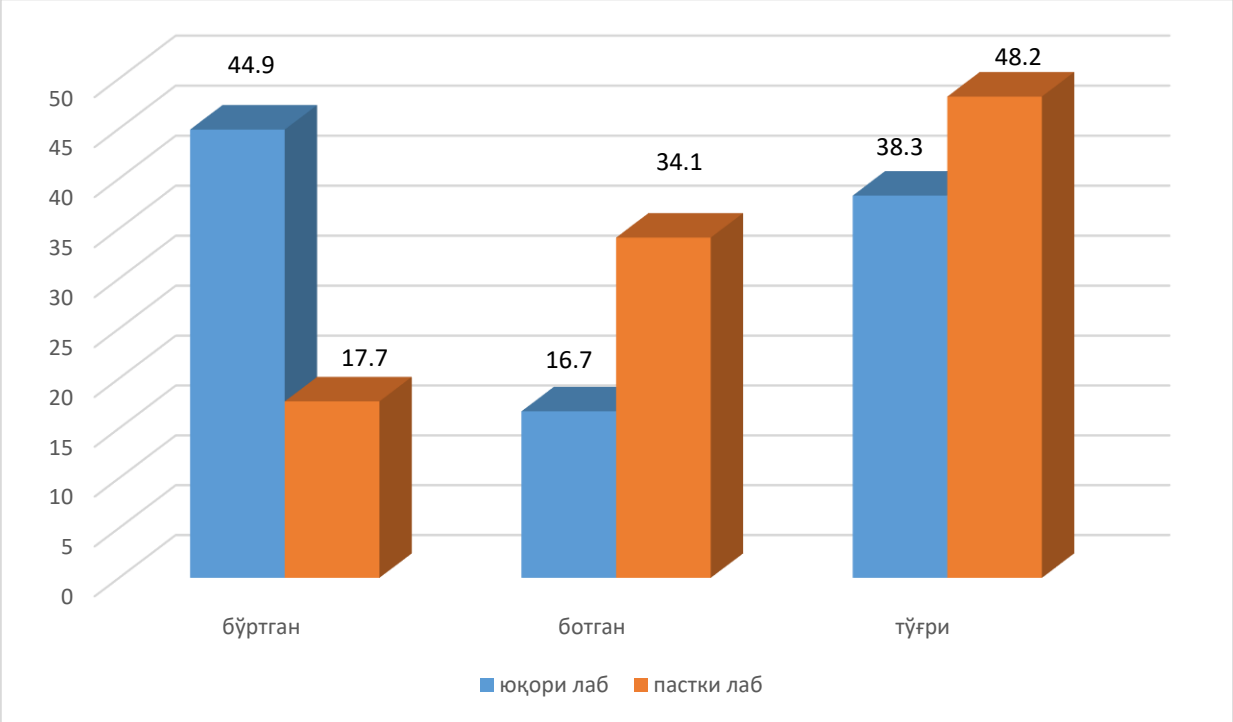

Figure 2. Comparative indicators of the frequency of upper and lower lip positions on the facial profile in children with dentofacial anomalies and deformities, %

Similar results were found for this indicator to the above 3 parameters. To optimize the assessment of facial profile, the ratio of all identified pathological conditions to the correct picture was studied in comparison and presented

Thus, an analysis of facial profile indicators in children diagnosed with dentofacial anomalies and deformities showed that pathological conditions were observed depending on the type of profile, the position of the upper and lower lip, the position of the chin (external swelling, internal penetration, progenia, retrogenia), which were significantly more frequent than the correct appearance. The obtained results show that pathological conditions were more common in the majority of facial profile indicators than in the correct condition, which is explained by the significant negative impact of the studied pathology on the facial profile of sick children.

Thus, an analysis of facial profile indicators in children diagnosed with dentofacial anomalies and deformities showed that pathological conditions were observed depending on the type of profile, the position of the upper and lower lip, the position of the chin (external swelling, internal penetration, progenia, retrogenia), which were significantly more frequent than the correct appearance. These changes were 1.10-2.67 times in the profile language, 1.17-2.19 times in the upper lip position, 1.41-2.72 times in the lower lip position, and 1.45-2.98 times in the chin position ($P<0.05$ - $P<0.001$).

Although the trend of these changes was essentially the same, the intensity of their changes varied. A similar trend and intensity of changes were observed in facial appearance. Therefore, the studied pathology negatively affects the cephalometric parameters of the face and leads to pathological changes, which is clearly manifested in the anterior (face) and lateral (profile) manifestations of the face. It has been established that such aesthetic and morphological changes lead to functional changes, manifesting as a factor that reduces the quality of life of children.

As part of the cephalometric examination, along with changes in the anterior and lateral sides of the face, the condition of the oral cavity in sick children was also studied. It visually examined the condition of the upper and lower lip, tongue, tongue, and mucous membrane. When assessing the condition of the bridle, its normality, shortness, width, and condition of attachment were studied. It was established that 324 (40.5±1.7%) children with normal upper lip curvature remained significantly elevated compared to other changes ($P<0.001$). The number of children with short bridles during visual examination was 120, which constituted 15.0±1.3% of all sick children. Extensive bridle condition was observed in 138 children (17.2.2±1.3%).

Low bridle attachment was also observed in 219 sick children (27.3±1.6%). As can be seen from the obtained results, the degree of these changes in the

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upper lip is significantly lower than the normative parameter by 2.70, 2.35 and 1.48 times, respectively (P<0.001), which is reflected.
Similar studies were conducted on the condition of the lower lip cuff. In this case, the trend of changes was similar to the above indicator, but differed in the intensity of changes, i.e., the indicators were deeper than the normative parameters. If the number of children with a short position of the lower lip cuff was significantly lower by 5.17 times compared to children with a normal position (P<0.001), then the number of children with a wide position of the lower lip cuff was even lower - the difference was 5.2 times (P<0.001), a similar difference was observed in the number of children with a high position of the lower lip cuff (3.36 times, P<0.001)

As can be seen from the obtained results, deviations from the norm in the positions of attachment of the upper and lower lip are significantly less common than normal values, which is clearly evident in Figure 3.
Therefore, the study of the oral cavity in children diagnosed with dentofacial anomalies and deformities showed that they have different positions of the upper and lower lip cuffs, which differ from normal appearance. It was found that changes such as short, wide, upper, and lower joints of the upper and lower lip cuffs differed from normal manifestations in both cases. This difference was 2.70, 2.35, and 1.48 times for the upper lip, respectively (P<0.001), while for the lower lip, the difference between these parameters was even deeper - 5.17, 5.21, and 3.36 times, respectively (P<0.001). The first aspect is that all indicators statistically significantly differ from each other, while the trend of changes is the same, and the intensity of their changes is different. All changes were interpreted as the impact of the studied pathologies.

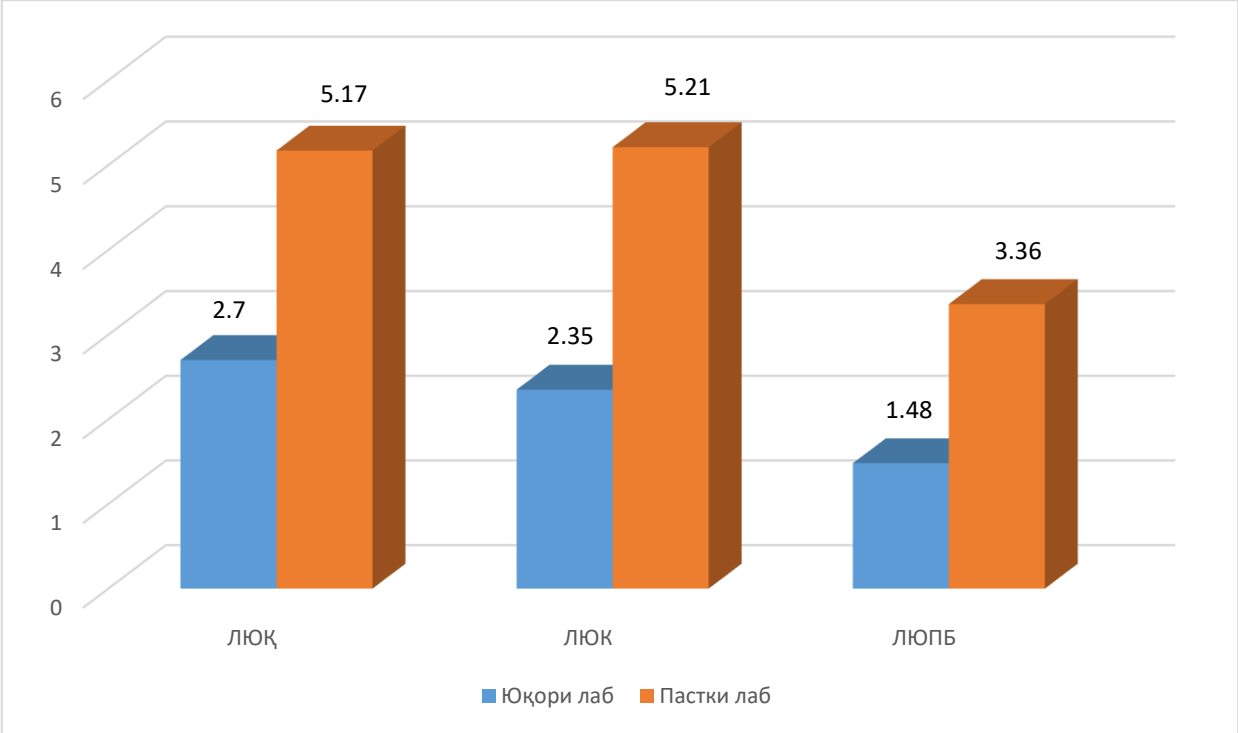

Figure 3. The ratio of changes in the loops of the upper and lower lip in children with anomalies and deformities of the dentoalveolar system to the degree of change relative to the norm, times (LUQ-lobular loops are shorter, LUQ-lobular loops are wider, and LUPU-lobular loops are lower).

Other indicators that allow for the assessment of the oral cavity in the examined children include the position of the tongue, tongue, and oral mucosa. Table 3 below shows the frequency of these indicators in numbers.
As can be see, the frequency of occurrence of all pathological symptoms was similar to that of the upper and lower lip cuffs, which determine the condition of the oral cavity.
The shortness and width of the tongue bridle were found to be 3.03 and 4.13 times less frequent than normal parameters, respectively (P<0.001), and their detection was assessed as an impact of the studied pathology.

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Two indicators requiring attention were assessed during the examination of the tongue of sick children, while if macro-gnatia was detected in 66 children (8.12±1.0%), then microglassia was even less frequent by 7.19 times - in 10 children (1.13±0.4%) - P<0.001. Despite the large number of changes in the COPD, they were observed in a small number, with hyperemia and edema predominating among them - 25.5±1.5% (n=204) and 20.6±1.4% (n=165), respectively. The remaining parameters were within the range of 0.9-6.9% and were considered unrelated to the studied pathology.

CONCLUSION: Thus, the frequency of occurrence of oral cavity status indicators in children diagnosed with dentofacial anomalies and deformities showed that changes in the tongue bridle, tongue position, and oral mucosa were observed in an average of 1/4 of sick children, ranging from 0.9±0.3% to 25.5±1.5%. The main changes were explained by the shortness (21.0±1.4% n=168) and width (15.4±1.3% n=123) of the tongue bristle, hyperemia (25.5±1.5% n=204) and edema (20.6±1.4% n=165) of the oral mucosa. The remaining changes were detected in 0.9-8.2% of cases. Therefore, despite the identical trend of changes in all indicators of the oral cavity condition, they were characterized by varying intensity, and it was also shown that not all of them were related to the studied pathology.

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