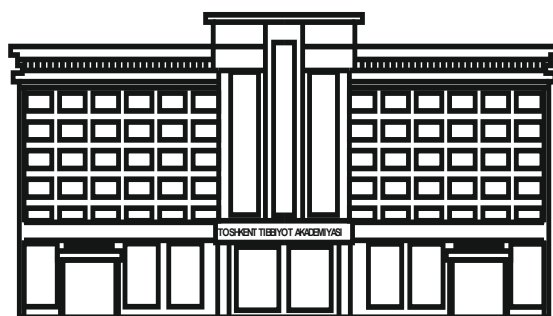


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CHANGES IN COMPLETE BLOOD ANALYSIS IN CHRONIC GLOMERULONEPHRITIS

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Chronic glomerulonephritis (CGN) is one of the important clinical forms of chronic kidney disease, which is characterized not only by a decrease in renal function, but also by systemic hematological changes. The aim of this study was to evaluate changes in complete blood count parameters in patients with chronic glomerulonephritis. The study involved 104 patients with CGN aged 20–65 years, who were divided into several groups according to clinical and laboratory parameters.

According to the results obtained, in all patient groups, hemoglobin levels decreased by 30.5–41.4% compared to the control group, confirming the formation of grade II anemia. A decrease in the number of erythrocytes by 20–30% was explained by chronic hematuria and a decrease in erythropoietin synthesis in the kidneys. Erythrocyte indices - color index, erythrocyte size and hemoglobin content in erythrocytes - showed a predominance of hypochromic, microcytic anemia. Also, an increase in erythrocyte anisocytosis by 3.8–4.8 times confirmed the morphological unevenness of blood cells and iron deficiency.

In conclusion, hematological changes observed in chronic glomerulonephritis are mainly accompanied by iron deficiency anemia, which is of important diagnostic importance in assessing the severity of the disease.

Key words: chronic glomerulonephritis, complete blood count, anemia, erythrocytes, anisocytosis, hemoglobin.

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LABORATORY TESTS FOR DETERMINING MALE INFERTILITY AND THEIR APPLICATION IN PRACTICE

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Infertility is a problem that affects approximately 10–15% of couples worldwide. About half of all infertility cases are due to male factors, and 25–87% of male infertility is thought to be caused by oxidative stress (1,2). Excessive levels of reactive oxygen species (ROS) damage sperm membranes and disrupt their DNA integrity. This not only reduces the likelihood of natural fertilization, but also negatively affects the effectiveness of assisted reproductive technologies (ART) and increases the risk of pregnancy complications [3,4].

Male infertility can be caused by genetic and infectious diseases, varicose veins of the scrotum, hormonal and immunological disorders, congenital or acquired anomalies of the genitourinary system, malignant tumors, and iatrogenic factors. In approximately 30–40% of cases, the cause of impaired sperm parameters is not identified. Sperm DNA damage, in addition to reducing the likelihood of natural conception, leads to a decrease in the results of IVF, as well as an increased risk of miscarriage and hereditary diseases [4,5].

Severe azoospermia and oligozoospermia are the most severe forms of spermatogenesis disorders, accounting for 10–20% and 15–20% of men with abnormal spermatograms, respectively. Using modern cytogenetic and molecular genetic diagnostic methods, macro- and microdeletions involving the AZF locus of the Y chromosome can be detected in 10–15% of men with azoospermia and in 5–10% of cases of severe oligozoospermia [8,9].

For many years, the problem of infertility has been one of the most important global issues in clinical reproductive medicine and gynecology. The World Health Organization (WHO) and the International Committee for Monitoring Reproductive Technologies recognize infertility as a separate disease and, given its prevalence, assess it as a global social problem. According to statistics, the share of male factors in infertility cases reaches 30–50%.

Male infertility develops due to various causes and is usually divided into the following groups: ejaculation disorders, congenital and acquired diseases (including developmental defects), environmental factors, hormonal imbalances, sperm pathologies, as well as idiopathic and genetic anomalies. Congenital diseases of the male reproductive system and genetic changes that lead to a decrease in fertility account for 5–15% of all cases. In most cases, these patients consult a doctor with infertility problems. Other factors that lead to male infertility are potentially preventable. Therefore, their early detection, assessment of clinical significance and preventive measures are of great importance, especially among young men [8,10].

In 2020, WHO developed new recommendations for the diagnosis and treatment of infertility. Male infertility is diagnosed through a complex of laboratory and instrumental examinations. Ejaculate analysis is performed according to the standard methodology recommended by WHO. Histological evaluation of testicular biopsy is performed using cytohistological analysis. Polymerase chain reaction (PCR) is performed on an MS2 programmable thermal cycler. For research, a blood sample taken from the patient is collected in vacuum tubes containing EDTA anticoagulant. DNA extraction is performed using the DNA-express-blood reagent based on the thermocoagulation method [1,6].

Conclusion: Early laboratory testing for male infertility is important in preventing and reducing this pressing problem.

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