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Bunday ma'lumotlar bir qator tibbiy kasalliklarni tashxislash uchun bebaho hisoblanadi. Radiatsiyani aniqlaydigan hisoblagichlarning yuqori sezgirligi tufayli inson tanasiga juda oz miqdorda radioaktiv moddalar kiritiladi. Shuning uchun bunday tekshiruvlar to'qimalarni nurlantirishning juda past dozalarida amalga oshiriladi, bu ayni paytda radiopreparatning juda kichik massasini kiritish zarurligini anglatadi. Tanadagi ko'plab jayronlarda, ayniqsa gormonlar yoki vitaminlar bilan o'zaro ta'sir qilishda moddalarning normal muvozanatini buzish oson. Radioaktiv tekshiruv kamdan-kam hollarda 1 mikrogramdan (grammning milliondan bir qismi) ko'proq moddani kiritishni talab qiladi, uning organizmdagi yo'lini kuzatish kerak, bu yuqoridagi normal muvozanatning buzilishiga olib kelmaydi. Bu tibbiy va biologik tadqiqotlarda qo'llaniladigan radioizotop usulining qimmatli sifati bo'lib xizmat qiladi [5].

Radioaktiv izotoplardan foydalanish. Tibbiyotning yangi sohasi radioaktiv izotoplardan foydalanishga asoslangan. Izotopning kimyoviy xossalari normal mos keladigan elementniki bilan bir xil. Yadroda juda ko'p yoki juda kam neytronlarga ega bo'lgan izotoplarning bir qismi radioaktivdir, ya'ni, Geiger hisoblagichi yoki sintillyatsiya hisoblagichi kabi sezgir asbob bilan aniqlanishi mumkin bo'lgan nurlanishni chiqaradi. Radiatsiya alfa yoki gamma nurlaridan yoki ikkalasidan iborat bo'lishi mumkin. Radioizotop tibbiyotida qo'llaniladigan ma'lum izotoplar mavjud. Radioaktiv nuklidni tanlash quyidagi talablar bilan amalga oshiriladi: past radiotoksiklik, qabul qilinadigan yarimparchalanish davri (bir necha daqiqadan bir necha soatgacha), ro'yxatga olish uchun qulay gamma-nurlanish [9]. Preparatning tuzilishiga u yoki bu tarzda kiritilgan radioaktiv nuklid uning belgisi sifatida ishlaydi. Radionuklidning nurlanishi o'rganilayotgan bemordan axborot-o'lchov kompleksiga muvofiqlashtirilgan ma'lumotlarning tashuvchisiga aylanadi. Radionuklid nurlanishining fizik xususiyatlari aniqlanishi kerak bo'lgan tana maydonining hajmi va chuqurligini oldindan belgilab beradi. Bunday holda, bemorning tanasidan chiqadigan radioaktiv nurlanish turli xil fiziologik mexanizmlarning funktsional holati va turli organlar va tizimlarning strukturaviy va topografik xususiyatlari to'g'risida bilvosita ma'lumot olib boradi.

Radioaktiv preparatni tananing (organning) tanlangan hajmida yoki butun organizmda vaqt o'tishi bilan tarqalish xususiyatlarini (tarqatish dinamikasi) kuzatib, biz organlar va tizimlarning funktsional holatini baholash imkoniyatiga ega bo'lamiz. Fazaviy taqsimotning tabiatini o'rganib, biz tananing, organning yoki tizimning ma'lum bir qismining strukturaviy va topografik xususiyatlari haqida ma'lumotga ega bo'lamiz. Shuning uchun, funktsional xususiyatlariga ko'ra, RFlarni fiziologik jihatdan tropik va inertlarga bo'lish mumkin. Bundan kelib chiqadiki, birinchisi strukturaviy va topografik tadqiqotlarni o'tkazish uchun eng yaxshi vosita bo'lib, ularning har biri o'rganilayotgan organ yoki tizimda radiofarmatsevtikalarning ko'p yoki kamroq barqaror tarqalishi o'rnatilgan paytdan boshlab amalga oshiriladi. Ko'pincha "transit" ko'rsatkichlari deb ataladigan ikkinchisi, asosan, gamma xronografiyasini o'rganish uchun ishlatiladi.

Shunday qilib, qalqonsimon bezda preparatning to'planish tezligi empirik tarzda aniqlanadi. Agar to'planish tezroq sodir bo'lgan bo'lsa, biz qalqonsimon bezning giperfunksiyasi bilan shug'ullanamiz va agar to'planish odatdagidan sekinroq bo'lsa, u holda gipofunksiya bilan klinik maqsadlarda radioaktiv kuzatuvchidan foydalanamiz. Ushbu misol radionuklid diagnostikasining mohiyati va imkoniyatlarini aniq ko'rsatib beradi.

THE ROLE OF INNOVATIVE EDUCATIONAL TECHNOLOGIES IN TEACHING BIOPHYSICS

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Annotation: The formation and development of biophysical as a science is historically associated with development of knowledge in medicine. There are many proofs that a

large number of biophysical concepts and phenomena appeared due to medical research and observation. Scientific achievements in biophysical also are used in modern medicine. Understanding the biophysical properties of objects and phenomena underlies many branches of human knowledge. Medicine is no exception. The researchers give several obvious examples of the “interaction” of biophysical and medicine, substantiate the importance of the attentive attitude of students of medical universities to the study of biophysical.

Key words: interaction, biobiophysics, medicine, medical education.

Often, faced in everyday life with various, simple at first glance, things, we do not think about their device. But worth it become interested and try to understand the principles of operation of one or different mechanism, as a large number of questions arise, to which it is impossible to give immediate answers. How does blood flow through our body, why, with an increase in body temperature, a column of mercury in thermometer rising?

Medicine is one of the broadest areas of human knowledge. For her study, you need to have a huge amount of knowledge, so students medical universities from the first year are studied on a par with clinical disciplines of the fundamental sciences. In fundamentality the key to the current viability of medicine and its future development is seen. One can truly achieve the goal by considering the body as a system systems and going through a more in-depth understanding of its physical and chemical. Medicine originated in ancient times. Although, along with rational experience of treatment, which was passed down from generation to generation, techniques bearing a mystical character, over time, the natural sciences nevertheless acquired fundamental importance.

Physicians-thinkers of antiquity were the first to think about the question of what heat is. They knew that a person’s health is related to the warmth of his body. The great Galen, back in the 2nd century, introduced the concepts of “temperature” and “degree”, which became fundamental for biophysics and other disciplines. Everything on our planet obeys physical laws, and our body is not exception. The work of organs and the functioning of systems that provide life is the main subject of medical study. But modern theoretical and practical medicine would not achieve great success, if not physical knowledge. Biobiophysics is the science that studies physiological processes in our body.

РОЛЬ ИННОВАЦИОННЫХ ОБРАЗОВАТЕЛЬНЫХ ТЕХНОЛОГИЙ В ОБУЧЕНИИ БИОФИЗИКЕ

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Biophysics helps diagnose diseases. Widely used x-rays, ultrasound, iridology, radio-diagnostics and many, many other methods. Unfortunately, many medical students underestimate the importance of studying biophysics. But can a doctor who does not understand the basic biophysical laws, competently work with the most complex diagnostic equipment and understand the basics of elementary processes occurring in the patient’s body? After all, as the theoretical physicist Stephen Hawking said: “Among all systems that we have, the most complex are our own bodies, and the task of a real doctor is not only to understand their work, but also to be able to “fix”, bring to a healthy state.

The development of scientific medicine would not have been possible without advances in areas of natural science and technology, methods of objective research patient and methods of treatment. In therapy, surgery and other fields medicine widely used the achievements of physical science and technology.

Biophysics helps in diagnosing diseases. Widely applied x-rays, ultrasound examination, radiology, radiodiagnostics.

Radiology is a branch of medicine that studies the application X-ray radiation to study the structure and functions of organs and systems and diagnostics of diseases. X-rays are electromagnetic radiation invisible to the eye. Penetrates through some materials that are

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