

**AN INNOVATIVE APPROACH TO THE TEACHING OF MEDICAL BIOLOGY IN
MEDICAL HIGHER EDUCATION INSTITUTIONS**

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Abstract: The educational process at a medical university is aimed at developing in students a logical relationship between phenomena and patterns in biology and medicine. Interdisciplinary hybridization of the taught material ensures the re-adaptation of first-year students to study in higher education and takes the first steps in the formation of personal qualities in the profession.

Keywords: Motivation, epistasis, gene expression, medical genetics, karyotype.

INTRODUCTION

The general task of the system of higher professional education is to form conscious motivation and professional competencies in future specialists. Currently, the educational process at a medical university is aimed at teaching students to independently actively master the system of general and special competencies and accumulate creative experience. The study of the fundamental principles of biology at all levels of the organization of life is carried out taking into account interdisciplinary connections both with natural science disciplines (biochemistry, biophysics, physiology, etc.) and with special medical disciplines (neurology, medical genetics; fundamentals reproductology; obstetrics and gynecology; faculty therapy; basics of children's health, etc.).

MATERIALS AND METHODS

Already in the first year, as a transitional stage between high school and university, students must take the first steps in learning the basics of logical and clinical thinking, acquire skills and abilities for their chosen profession and be focused on self-study, which is necessary in continuous professional self-improvement [1]. The future doctor must form ideas about the features of the stages of individual human development from the standpoint of the implementation of normal hereditary information, as well as violations of its reading under the influence of epigenetic factors in specific environmental conditions. At the present stage, knowledge of the molecular genetic basis for the implementation of full or impaired structural and functional indicators is necessary for understanding and using new methods for diagnosing hereditary diseases and creating drugs using genetic engineering technologies.

RESULTS AND DISCUSSION

Introduction and evaluation of the effectiveness of technologies for developing the fundamentals of professional skills and the formation of motivation for professional activity in the process of teaching medical genetics to first-year students.

At our university, educational activities to master the fundamental basis of medicine - biology are aimed at practice-oriented mastery of basic biological knowledge, such as: acquiring practical microscopy skills; ability to analyze the studied micro- and macropreparations; compilation and analysis of logical structure graphs on the topics being studied; production and protection of units of genetic activity (operon and transcription) based on specific examples; construction of idiograms of chromosome sets in normal and pathological conditions [2].

Mastering the discipline “Fundamentals of Medical Genetics” in the first year requires a special methodological approach not only to stable mastery of theoretical knowledge of genetics, but also to the formation of the first steps in acquiring skills in diagnosing hereditary diseases based on genetic, chromosomal and genomic levels. Accordingly, there is a need to introduce technologies that would not only ensure a high level of mastery of program material in a specific academic discipline, but also contribute to the development of professional skills and motivation for future professional activities. In this regard, teachers of the biology department of our university are constantly searching for new teaching technologies for students to fully master the educational material and acquire practical skills in their specialty.

For example, in a practical lesson on the topic “Interaction of non-allelic genes,” the method of analyzing situational problems in the form of debates is used. Students are offered the choice of the role of a medical genetic consultation doctor, a geneticist and a patient seeking help [3]. During the debate, it is important to convincingly explain the possibilities for the manifestation of variability of signs in health and disease. When solving problems on the polymeric interaction of non-allelic genes, the emphasis is on the polymorphism of the manifestation of a trait within the normal range: the birth of a mulatto child with light skin pigmentation, or, conversely, with intensely dark skin. When considering situations of interaction of non-allelic genes, it is important to take into account the joint complementary action of genes necessary for the new formation of the analyzed trait, or to remember the insidious actions of the epistatic gene, which does not make it possible to fully implement genetic information into a specific trait.

In a lesson on the topic “Molecular bases of heredity and variability. Regulation of gene expression in pro- and eukaryotes” in classroom work, a conversation in the form of a press conference is used. Regulatory mechanisms are considered taking into account the possibilities of using the obtained data in practical medicine, which is significant for any specialty. We have selected the following information that is relevant for this area: “Synthesis for salvation - the successes of biologists will save cells from death”, “Genetics and manipulation of the gene that controls the growth of red blood cells in the blood”, “Rinse aid for teeth growth”,

“Genetics of stress”, etc. Information is processed in small groups, where the main speaker is selected, and the rest participate in opposition. In essence, the presentation asks questions from the standpoint of the significance of information for medicine and in addressing issues of improving the health of the population. Each student in the group has the right to express their point of view and evaluate the information from the point of view of practical application [4].

CONCLUSION

Thus, at each lesson, students receive the necessary basic knowledge, consolidate acquired practical skills, which creates continuity for subsequent more in-depth study of special disciplines in senior years. The feasibility of this approach also lies in the fact that students' motivation to learn significantly increases.

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