

Stoyanov A.N., Dobrovolskyi V.V., Son A.S., Vastyanov R.S., Lebed O.P.,  
Chemeresyuk I.G.

Odessa National Medical University, Odessa, Ukraine

## **POSSIBILITIES TO IMPROVE TEACHING EFFICIENCY AT THE MODERN STAGE OF REFORMING HIGHER MEDICAL EDUCATION IN UKRAINE**

In connection with the integration of the higher medical education system of Ukraine into the European educational program, new problems arise in improving the base of educational services [1].

We pay a lot of attention to improving and optimizing the training of medical students in order to prepare future highly qualified specialists. We believe that in this case it is necessary to introduce European educational and medical standards into the educational and integration process. The signing of a document on the association of Ukraine with the EU means the introduction of fundamental changes, including in the health sector. In connection with the globalization of the global educational space, the national higher medical school must go through a complex modernization process in order to meet the requirements of the Bologna Declaration signed by Ukraine. One of the main goals of reforming higher medical education in Ukraine is the training of medical personnel through the introduction of European educational and medical standards in the educational process [2].

It is important to increase the intellectual, scientific, educational, professionally-oriented level of future doctors, providing them with modern, more effective innovative and informational medical technologies. The methodological aspects of teaching medical disciplines, in our opinion, were and are very important.

The levels of assimilation of the material, the quality of training of specialists are inextricably linked with the motivation of the individual to the need to acquire

them and, in general, to study at a higher educational institution. Learning, which includes the functional structures of the three subtypes.

The first includes systemic elements - the stimuli of activity, namely: the needs, motives, attitudes and goals of a person, that is, those elements of activity that explain the reasons for activity, and the very fact of why a person studies works.

The second subtype includes the systemic elements of the cognitive sphere, the third - the operational-technical elements or directly the working mechanisms of the activity: what you need to know in order for the activity to be completed, what skills are needed for this [3].

Certain blocks must be formed that represent different levels of a holistic psychological attitude. This is a hierarchy of social, semantic, situational, target and operational settings. It is important to remember that such combinations are necessary for the formation of the educational activities of medical students. In our opinion, the quality of the prevailing installation (or complex of installations) determines the degree of responsibility of students in the assimilation of knowledge by them (in fact, during training). Having the ability to quickly and efficiently assess the level of students' knowledge in the clinical disciplines (primarily, neurology, therapy and surgery), we highlight the following disadvantages of senior students in their study of clinical disciplines.

So, the following fragmentary knowledge and imperfect ideas of students are frequent: about the structure of the body, central nervous system, links of the peripheral nervous system and the interaction of individual organs and systems in the performance of specific functions; about the essence of biochemical processes that occur at the level of the cell and the whole organism under normal conditions, as well as in cases of compensatory-adaptive and protective reactions; about the basic principles of the body's reactivity with respect to the pathogenic effects of altering factors, about the device and the functioning mechanisms of histo-hematological barriers; about the pathogenetic mechanisms of typical pathological processes and about the features of sanogenesis; the location of the cranial nerves and the localization of the elements of the autonomic nervous system; on the mechanisms of

adaptive activity of the central nervous system under the action of stress and altering factors; feedback mechanisms; on the mechanisms of inflammation in the nervous tissue; on the mechanisms of action of conditionally pathogenic and pathogenic, neurotropic microorganisms when the latter enter the human body; about normal blood flow mechanisms, features of blood supply to organs, brain and spinal cord during typical pathological processes, as well as about the basic physiological prerequisites for blood transfusion; about the mechanisms of the coagulation process and its violations in the pathology of the body [4].

The current situation is apparently the result of broken intersubject communications, a systematic approach to teaching students in theoretical departments, and the failure to develop a motivational component that characterizes the individuality of the educational process. To instill in students a love of their profession, you need to start with basic, theoretical disciplines, in particular with pathological physiology, which, like the “philosophy of medicine”, is a kind of “bridge” between theoretical and practical medicine.

In this case, motivation is the main driving force in the behavior and activities of a person, as well as in the process of forming a future professional. Its formation is an important pedagogical problem, since it is incredibly difficult to get a student to learn material if he himself does not understand why he needs it [5]. The classical construction of the study of material in theoretical departments takes into account the compulsory accounting of basic knowledge, control over the study of the material, the presentation of new material and the independent part of the lesson - solving tests, situational tasks, filling out albums, and answering the teacher’s questions. We note that the meaning and content of independent work vary in general theoretical and clinical departments, which, in our opinion, is the potential resource for optimizing students' theoretical knowledge. We are sure that more attention should be paid to studying the functioning of organs directly on a person (in this case we are talking about student volunteers). We believe that in order to increase the effectiveness of student learning during a practical lesson, one should work out the development of the basic prerequisites for clinical thinking in them - making a clinical diagnosis in

most cases is impossible without a harmonious combination of professional and creative diagnostic methods, without the ability to evaluate all the patient's symptoms, laboratory parameters, the presence of comorbid pathology [6].

Therefore, the use of situational tasks and clinical techniques becomes an integral part of seminars and practical exercises. In such cases, the student gets the opportunity to "try on" the role of the attending physician and experience genuine excitement in formulating the correct diagnosis. Of great medical and social importance is the problem of concomitant diseases, due to the increasing aggressiveness of the environment and the altering effect of exogenous environmental factors, which students should pay attention to in the aspect of their subsequent study of clinical disciplines. The formation of comorbid pathology is associated with stressful overloads, information stress, morphogenetic and regulatory disorders of the immune system and other dysfunctions [6].

Comorbidity is one of the most important problems of modern medicine, since a lack of knowledge in this area interferes with effective pathogenetically substantiated treatment, rehabilitation and prevention. The solution to this problem depends on a thorough pathophysiological analysis of the pathogenesis of comorbid pathology. The flow of information flowing to each student from different sensory systems is growing, new conditioned reflexes are being formed, the processes of memory and memorization are being activated, and also - importantly, the logical-abstract thinking, which is essential for successful learning in senior courses, is being improved. The best assimilation of knowledge, in our opinion, will also be facilitated by the continuity and integration of teaching all disciplines "horizontally" and "vertically" [4, 5, 7]. The knowledge of pathological physiology for the first time reveals to many students a scientific, dialectically sound idea of the role of environmental factors, disturbed ecology, climate change, social conditions in the development of pathology. At the same time, we are forming an understanding of the adaptive and compensatory resources of the body, which can delay the dire consequences of the development of the disease, but these resources are endless: they can be depleted, and then the disease ends in mortality [6].

That is why a preventive direction in medicine should be developed. Much attention should be paid to the implementation in the practice of teachers of the cumulative-rating system for assessing student knowledge using a unified test control. In our opinion, students should solve test tasks at each lesson, because a specific test task provides the student with the opportunity to evaluate their actions in an urgent situation, which consists of the following components: high motivation for the correct solution of the test, short time for its solution and insufficient (as an option - missing) amount of knowledge for the correct answer. To increase the survival of students' knowledge and their application in clinical departments, the work on increasing the test bank in each discipline should be intensified. The aforementioned not only significantly improves the degree of students' mastery of theoretical knowledge, but also facilitates the training process in clinical departments, which ultimately will contribute to the preparation of a highly qualified doctor who is able to solve complex problems within a limited period of time. One of the promising areas for the development of teaching methods of theoretical and clinical disciplines is the introduction and widespread use of multimedia teaching aids, which will create a kind of "cumulative effect" from the simultaneous supply of information from various sources. The presence of the game component in the process of assimilation of knowledge will contribute to the formation of a multi-stage vision of the scientific picture of wildlife, polycentrism in the biological worldview and the formation of a holistic picture of the functioning of the human body under normal and pathological conditions [8]. Promising, in our opinion, is the development of multimedia tools for interactive learning, involving a diverse presentation of information with the possibilities of self-monitoring and introspection. This area of use of computer technology in our conditions is used too utilitarian. Therefore, it is necessary to develop multimedia encyclopedias and role-playing games that would fully comply with the initial program of theoretical and / or clinical discipline. At the same time, two main tasks are solved: the quality of teaching teaching material is improved and the effectiveness of students mastering knowledge with this type of information is significantly increased. To increase the efficiency of mastering knowledge on the

issues of neuroscience, adaptation processes, higher nervous activity, the reflex sphere, prevention, prognosis of diseases with the active participation of the nervous system, teachers of the departments of pathological physiology and neurology are involved. Students are fully provided with all the necessary sources of knowledge: they have time-tested and the latest textbooks, access to the university's electronic library, the ability to find any article of interest on the Internet, and numerous textbooks written at the department [7].

But the value of any higher educational institution lies in its teachers: it is the experienced and highly professional lecturers who are able to “ignite” the audience, convey to the audience the essence of the taught material so that students can figuratively imagine the pathological process that occurs not in the abstract “organism”, but in animate [9]. As mentioned earlier, an important aspect of the problem under consideration is the publication of textbooks for students, interns, clinical residents, and cadets of the faculty of postgraduate training. The employees of our departments also work on this for a long time, which resulted in the writing of a number of textbooks and teaching aids.

Experience shows that the teacher's own research is usually correlated with the degree of preparedness of students, trainees, cadets of the faculty of postgraduate training for professional activities and the level of motivation for learning. Modern scientific developments of teachers, their scientific priority and teaching students their own research data increase their interest in teaching, the prestige of the teacher and create favorable conditions for the professional growth of future doctors and scientists [10].

Close cooperation is being carried out in terms of comprehensive scientific research of various aspects of neuroscience (departments of physiology, pathophysiology, neurology, therapy, endocrinology, and others). The results of scientific research are being implemented in practical health care (guidelines, information sheets, rationalization proposals, patents) [11-24].

The student scientific neurological circle is fruitfully working. Students participate in research, starting with junior courses, which allow them to continue

clinical research based on experimental models. Many scientific student works are awarded with awards and diplomas of different levels. So, we consider scientific activity and its close commitment to the pedagogical process as one of the forms of measures that increase its effectiveness.

Given the rate of change of some concepts and theories in modern neurology, we consider it appropriate to involve specialists in fundamental sciences (biology, genetics) who study the features of the functioning of the nervous system in various situations and adapt to the mechanisms of training the nervous system. This allows you to quickly navigate the new progressive information, which is important for the correction of diagnostic measures, optimization of therapy and prevention of neurological disorders in the practice of a neurologist, and especially important - a family medicine doctor for quick response in the flow of various medical information.

The advantages of textbooks written by employees of the departments of a medical university are their adaptability to the needs of students and cadets of various levels, taking into account the specifics of teaching theoretical and clinical disciplines in each higher educational institution, as well as the comprehensiveness of the presentation of educational material, despite the possible emphasis in its teaching. In our opinion, the publication of educational literature in various medical specialties is also a promising means of effective assimilation and consolidation of knowledge by future doctors. We are convinced that the optimization and improvement of the educational process at medical universities is to attract students to the problems that the medical community today has to deal with. The standards adopted today for standardizing diagnostics, treatment, and prevention of various pathologies cannot and should not exclude an individual approach to treating a patient taking into account his age, gender, heredity, constitution, reactivity, stage of development of the disease. This knowledge is given by the course of general and clinical pathophysiology, which is improved and deepened at all stages of the development of medical science.

Therefore, we see success in systematic methodological work with students, the implementation of which will make it possible to provoke and increase their motivation for learning. We are sure that the constant convergence of teaching theoretical and clinical disciplines, the approximation of training to a specific patient will help optimize the assimilation of theoretical knowledge by students, and will lead to a better assimilation of clinical disciplines by them.

### **List of references:**

1. Preparation of a general doctor in one of the directions of higher medical education reforming / Yu.M. Kazakov, L.F. Zvyagintseva, V.Yu. Shtompel [etal.] // Modern problems of training specialists in higher medical and pharmaceutical educational institutions of the I-IV levels of accreditation of the Ministry of Health of Ukraine. – Abstracts. – Kyiv-Ternopil, 1999. – P. 32-33 (In Ukrainian).

2. Problems and prospects of higher medical education in the implementation of the National Strategy for Health Care System Reform / V.M. Moroz, Yu.Y. Guminsky, L.V. Fomina, T.L. Polesya // Problems and prospects of a higher medical school in the development and implementation of a national strategy for building a new health care system in Ukraine for the period of 2015-2025. – Abstracts. – Vinnutsya, 2015. – P. 3-6 (In Ukraine).

3. Innovative comprehensive teaching of neuroscience to improve the professional education of neurologists / O.M. Stoyanov, R.S. Vastyanov, T.M. Muratova, V.V. Dobrovolsky // Integrative Anthropology. – 2015. - N2 (26). – P. 64-69 (In Ukraine).

4. Problems and prospects of foreign students teaching at a medical university / R.S. Vastyanov, I.V. Savvitskyi, Ye.M. Levchenko, A.F. Dzygal // Professional Education: Problems and Perspectives. – K. : IPTO HAPS Ukraine, 2017. – Iss. 12. – P. 14-18 (In Russian).

5. Perspectives of development and improvement of the teaching of pathologica lphysiology at medical universities / R.S. Vastyanov, I.P. Gurkalova,



V.P. Babiy, I.A.Kuzmenko // Experimental Clinical Medicine. – 2016. - N2 (71). – P. 31-35 (In Russian).

6. Pathogenetic mechanisms of a comorbid pathology in ankylosings pondylitis (Bechterev's disease) / Ye.A. Yakimenko, R.S. Vastyanov, I.P. Gurkalova [etal.] // Experimental Clinical Medicine. – 2016. - N2 (71). – P. 237-241 (In Russian).

7. Innovative comprehensive teaching of neuroscience to improve the professional education of neurologists / O.M. Stoyanov, R.S. Vastyanov, T.M. Muratova, V.V. Dobrovolsky // Integrative Anthropology. – 2015. - N2 (26). – P. 64-69 (In Ukraine).

8. Gozhenko A.I. Fundamentals of the theory of disease / A.I. Gozhenko. – Odessa : Fenix, 2015. – 84 p (In Russian).

9. The prevailing role of motivation students teaching at the Odessa national medical university at the general and clinical pathological physiology department / R.S. Vastyanov, I.V. Savytskyi, Ye.M. Levchenko, I.O. Ostapenko // Advances Biology Medicine. – 2017. - N1. – P. 53-57 (In Russian).

10. Tutoring in the process of an integrative approach in the innovative-simulation method of medical students teaching / V.V. Artemenko, R.S. Vastyanov, I.V.M'yastkivska, A.S. Zaitsev // Odessa Medical J. – 2016. - N3 (155). – P. 59-65 (In Ukrainian).

11. Differentiated low-frequency laser therapy of vegetative-vascular dystonias – Information letter of the Ministry of Health of Ukraine. - No. 6. - Kiev, 1992. - 2 p.

12. A method of treating visceral autonomic pathology and secondary vascular cerebral dysgemia. – Information letter from the Ministry of Health of Ukraine Inform. Letter of the Ministry of Health of Ukraine № 185, - Kyiv, 2002 - 2 p.

13. The method of treatment of Steinbroker's shoulder-brush syndrome. – Information letter of the Ministry of Health of Ukraine № 122, - Kyiv, 2005 - 2 p.

14. The method of treatment of hysterical disorders. – Information letter of the Ministry of Health of Ukraine № 123, - Kiev, 2005 - 2 p.

15. The method of treatment of cerebrovascular pathology. – Information letter of the Ministry of Health of Ukraine № 124, - Kyiv, 2005 - 2 p.

16. The method of treatment of pain syndromes. – Information letter of the Ministry of Health of Ukraine № 130, - Kiev, 2004 - 2 p.

17. The method of treatment of polyneuropathy – Information letter of the Ministry of Health of Ukraine № 309, - Kiev, 2009 - 2 p.

18. The method of treatment of vegetative dysfunctions in neurological complications of diabetes – Information letter from the Ministry of Health of Ukraine № 48, - Kiev, 2010 - 2 p.

19. Complex treatment of back pain combined with visceral pathology – Information letter of the Ministry of Health of Ukraine № 159, - Kyiv, 2015 - 2 p.

20. A method of treating tremor and autonomic disorders. – Information letter of the Ministry of Health of Ukraine № 206, - Kiev, 2011 - 2 p.

21. The method of treatment of vestibular dysfunctions in chronic vertebral-basilarinsufficiency – Information letter of the Ministry of Health of Ukraine № 380, - Kiev, 2014 - 2 p.

22. Muratova T.M., Dubenko A.E., Stoyanov A.N. A method of overcoming pharmacoresistance in patients with various forms of epilepsy. – Information letter of the Ministry of Health of Ukraine № 370, - Kyiv, 2017 - 3p.

23. Method for the treatment of brainis chemia with vestibular dysfunction and cognitive impairment in patients with cervical osteochondrosis – Information letter of the Ministry of Health of Ukraine № 181-2019, - Kiev, 2019 - 2 p.

24. The method of treatment of tremor in vegetative dysfunction against the background of ischemic braindamage – Information letter of the Ministry of Health of Ukraine № 346 - 2018. - Kiev, 2018 - 2 p.