

2.4 Forming of clinical thinking by students of higher educational medical establishments

Basic tasks of teaching on the department of internal medicine, physical rehabilitation and sporting medicine: studies of therapeutic inspection skills, exposure of symptoms of cardiovascular system defeat, selection of cardiologic syndromes and defining of diagnosis; getting by students of modern knowledge about etiology, pathogeny, clinic, diagnostics, treatment and prophylaxes of the cardiovascular system diseases; forming by students of clinical thinking, ability independently to diagnose, conduct and appoint the necessary complex of inspection and treatment of the urgent neurological states and prophylaxis of cardiovascular system diseases.

Special attention is payed to diagnostics and treatment of such diseases as sharp coronal syndrome, hypertension, disease and traums of myocardium, arrhythmia and blockade. At the analysis of clinical groups of patients, it is necessary to underline importance of early diagnostics, necessity of timely hospitalization of patients.

In doctor work, together with common to all mankind aspects of intellectual activity, represented in gnosiological principles of theory of cognition, there are elements of the specific professional (medical) thinking. High mental abilities (intellect) belong to that doctor, who has got deep thinking, who is able to analyze and synthesize of the supervisions, who can be correct in diagnostics and treatment.

Undoubtedly, the foundation of high-class workmanship – high doctor proficiency – is formed in a medical cradle – alma mater, because "Nemo nascitur sapiens". The clinical thinking is the professionally-systemic thinking that will realize initial mental operations: analysis, comparison, synthesis and generalization in the medical diagnostics, the therapeutic and creatively-technological prognostication and final: decision-making, control and estimation – in the aspect of processes of treatment and psychological co-operation of doctor with a patient.

According to the specific of medical activity, given mental operations acquire professionally-original expression – as symptom-complex analysis, theoretical and

practical-clinical comparison, theoretical generalization – character, practical generalization – character, decision-making, reflex-estimation control.

Process of clinical thinking forming by students on the department of internal medicine, physical rehabilitation and sporting medicine is methodological system, which includes general pedagogical and personality oriented aims, making educational process as a research and making analytic-research selforganisation by students of their educational activity; pedagogical stimulation of analytic-research students activity and independent accumulation by them of research abilities; didactics providing of the clinical thinking development and step by step accumulation of his elements by students efforts; intercommunication of traditional and nontraditional methodologies (educational programs, innovative cardiologic practices models); forms (any type of theoretical and practical-research classes) and educational-experimental methodologies.

Realized on the certain stages, depending on their functional tasks, previous components form systemic model of clinical thinking process.

To our opinion, requirement of the quality professional preparation of future doctor, which was pulled out in modern terms, can be realized on conditions of forming in him clinical thinking, as cognitive part of his proficiency. Clinical thinking is formed in the process of technical preparation of future doctor, comes forward as its result and essential description of the professional thinking in general.

An orientation of clinical thinking simultaneously on discover of complex of destructive valeological situation in people's life, their transformation on the basis of complete recreation of scientific knowledge and experience, and in lack of time have the ability to give to the mental operations integral-content sense, - found their reflection in organization of educational process on the department of internal medicine, physical rehabilitation and sporting medicine.

Preparation of specialists of new quality, who are able for self-education, oriented on creative approach to the task, who has high level of clinical thinking stimulated the teachers of our department to the research of innovative educational technologies in the educational process.

According to our deep persuasions, today in educational process it is not acceptable: the frontal forms of organization of classes, in which the “wall” divides teachers and students and where the teacher has got the role of judge, passes judgement; such forms of knowledge control, which comes simply to recreation of earlier studied material; low activity of students during classes, when they fix most of the time on educational material, lacking initiative of students thinking, who give priority simple memorizing of the material in getting of strong knowledge.

One of the most important problem, which stands before the department of internal medicine, physical rehabilitation and sporting medicine of Higher state educational establishment of Ukraine ”Bukovinian state medical university” is upgrading of specialists’ preparation. In accordance with it, the main purpose of educational program of medical profile is formation of future doctor competence (cognitive, operational, law competence as well as self-education competence), that’s why development of professional, intellectual skills by implementation of innovative methods is objectively conformity to law [76,77].

One of the most perspective directions of personality creative skills, necessary to the future doctor is problem education. Problem education – to teach solving of the non-standard tasks, in which students study new knowledge, skills and abilities [74,78]. The main result of this method is forming of student professional thinking. Problem education forms in specialist ability to see independently and set forth the problem, ability to suggest a hypothesis, find or invent the verification method, collect data, analyze them, offer the method of their analyzing, ability to see the problem in general, all the aspects and stages of its solving, and in group work – to define the degree of personal participating in solving the problem.

Problem education is in that the teacher does not give ready material, but put before the student the problem tasks, inducing to search ways and facilities in their solving. To solve the problem, you need creative thinking. In modern pedagogics three forms of problem education are practiced: problem teaching of educational material in lectures, or seminars; research activity at experiment on laboratory works; independent research activity.

Upgrading, efficiency of students' education directly depends on ability correctly select and use different, the most adequate to these subjects and situation methods of education [75].

The modern terms of students studies differ in the innovation implementations and new methods. These active methods of education develop in students critical and clinical thinking, form of experience of creative and innovation activity, perfect competences, teach to work in advance, stimulate development not only students but teachers as well. It is marked, that when we use active methods of studies, students keep in their mind 80% of what they told by themselves and 90% of that, what they did by themselves.

Among innovative technologies, which are implemented in pedagogical activity of the department of internal medicine, physical rehabilitation and sporting medicine, the most often used: method of situational analysis - case-method that includes analyses of concrete situations (situational tasks, situational exercises) and method of roles playing.

The basis of the technology of learning by the case method is the theory of Experimental learning - the practice of learning [75]. The practical implementation of this theory includes on-the-job training, mentoring, coaching, tutoring, classroom training using the case method. A case is a specific situation, a description of real events that took place in the course of professional activity in words, figures and images, in which it is necessary to offer options for solving the problem. Case-method refers to the study of a subject by students by considering a large number of situations or tasks in certain combinations. Such training, in our opinion, develops in future doctors an understanding of the structure of professional medical activity, allows them to accumulate valuable and meaningful experience in solving problems they face in the field of professional activity. The case method promotes the development of the ability to analyze situations, evaluate alternatives, choose the best option and develop a plan for its implementation. And if such an approach is applied repeatedly during the educational cycle, then future doctors gain experience in solving professional tasks. At the same time, an important feature of the method is that it contributes to the

development of students' abilities to make a well-founded and reasoned choice of various options for solving one or another problem, which, in turn, creates prerequisites for the formation of professional values, beliefs and, ultimately, the organization of value orientations and their distribution to professional activity.

The function of the teacher is to select the appropriate material, and the students must solve the task and get the reaction of others (other students and the teacher) to their actions [78]. At the same time, it should be emphasized that the case method does not provide for a mandatory single correct solution option, different approaches to solving problems are possible. The teacher's role is to direct the conversation or discussion, for example, with the help of problematic questions, to control the working time. The teacher can generalize, explain, recall theoretical aspects or make references to the literature. In pedagogical science, specific requirements for the content of the case have been developed. A specific situation is considered in the case study. The description of the situation includes the main cases, facts, decisions that took place during a certain time. Moreover, the situation can reflect both a complex problem and some specific goal. As a rule, the information does not provide a complete description of the process or event, but rather has an indicative nature. Therefore, in order to build a logical model necessary for making an informed decision, it is allowed to supplement the case with data that, according to the participants, could have taken place in reality, with their own examples from life experience. Thus, the student not only captures the case under consideration, but also delve into it to such an extent that he can predict and demonstrate what is missed in the case.

One of the main tasks of the case method is to maximally activate each student and involve him in the process of analyzing the situation and making decisions [78]. Therefore, the group is divided into such a number of subgroups that they consist of 3-5 people. Each group chooses a leader (moderator). The moderator is responsible for organizing the work of the subgroup, distributing questions between participants and making decisions. After completing work on the topic of the class, the moderator, or any other group member, makes a report on the results of his subgroup's work.

A promising technology is the method of educational discussion. A discussion is often called a discussion-dispute, a clash of points of view, positions, approaches, etc. The main features of an educational discussion are that it is a purposeful and orderly exchange of judgments and opinions in a group for the purpose of searching for the truth, and each person present in his own way participates in the organization of this exchange of ideas.

In particular, there are interesting discussions in which one part of the students advocates medical methods of disease treatment, for example, coronary heart disease, and the other proves the advantages of surgical interventions for these conditions, for example, coronary artery stenting and aorto-coronary bypass. Educators focused on the development of creative thinking recommend building an educational discussion in such a way as to give students the opportunity to make their own decisions, analyze different ideas and approaches, and build actions in accordance with their decisions.

Analysis of concrete situations – one of the most effective methods of organizing of active cognitive student's activity [78]. Method of analysis of concrete situations develops ability to analyze the vital and professional tasks. Facing the concrete situation, a student must define: whether it has the problem, what it consists of, define his attitude to the situation, propose variants in solving the problem. Working in group from the analysis of situation, allows the students not only remember the material better, but to examine different possibilities and approaches in the solving different practical tasks or problems.

In forming of the clinical thinking a large role is played by the usage in educational process of playing imitation methods – situational tasks and business games with solving practical questions of treatment-cardiologic tactics, diagnostic, expert, prophylactic and other aspects.

Statistical results, which were made on the department of internal medicine, physical rehabilitation and sporting medicine showed that the given material was excepted by 20% on lectures, by 75% on discussion and by 90% on playing business games.

The educational game in medical education should become that integral method of learning and control, which, in conditions close to real ones, will objectively reveal the student's ability for real concrete professional activity. In the practice of teaching at the department of internal medicine, physical rehabilitation and sports medicine, several variants of clinical role-playing games turned out to be the most effective. The first type of game: "doctor - patient". This is the main form of a clinical game that simulates the conditions of the intellectual professional activity of a doctor aimed at recognizing diseases and treating a patient. As a rule, the game is played in pairs. Participants divide the roles between themselves: doctor and patient. Alternate performance of roles is possible. The teacher formulates tasks for the "doctor" and the "patient".

General games of business games in medicine: immersion of students in the atmosphere of intellectual activity, close to professional practical doctor work in diagnoses diseases and treatment of patients; creation by the players dynamically changeable picture depending on correct or incorrect actions and decisions; forming of ability to make differential diagnostics by a short way for limited time and appointing of the best treatment by the simplest and affordable methods; ability to create optimal psychological climate in talking to patients and colleges; development of skills of effective work in the conditions of primary medical link – on an ambulatory reception in a polyclinic, on first aid, in a role of district doctor; as control of professional preparation serves as a barrier on the way to the bed of patience, skipping to the patient only professionally prepared.

Business games have enormous educational and developing possibilities. Firstly, they model professional relations, conditions of professional activity, which put the student into professional environment, so in business games necessary abilities and skills are formed for professional functions and it gives the opportunity to shorten a break between the theory and practice. Secondly, emotionally-creative searching character of business game serves as the didactics means of development of the creative, professional thinking that shows up in a capacity for the analysis of clinical situations, in a clearness and validity of decisions, ability effectively to co-operate with a partner.

Thirdly, a business game exposes personality potential of student: ability to occupy active position, test itself on a professional fitness, managed in a professional competence, and also to forecast own possibilities for implementation of future professional activity.

Similar classes train to independence, initiativeness, cause sense of satisfaction and confidence in itself.

Business games can be one-sided, when all players aspire only certain goal to the achievement; bilateral, when different parties try to settle a situation in their own benefit; multilateral, when it is necessary to organize the difficult co-operating of players with competitive and mutually exclusive interests. A business game is the difficult arranged method of studies, as can include in itself the whole complex of methods of active studies: discussion, brainstorming, analysis of concrete situations, acting on instruction and others like that.

Plugging the games in the educational process does the process of studies happy, emotionally gap-filling. Competition, the change of types of activities in playing form revives perception, assists stronger memorizing of educational material, enriches the process of studies, operating on principle: "Tell me - and I will hear. Show me - and I will memorize. Attract me - and I will understand".

Business games are a perspective form of educational activity, that form skills of the clinical thinking. Playing and imitation technologies are the modern requirements of time, according to the credit-module system, the fundamental difference of that is a transition from cognitive technologies to competent, where the clinical thinking is examined as one of the professional competences of future specialist.

In practice of teaching on the department of internal medicine, physical rehabilitation and sporting medicine a few variants of clinical role plays appeared the most effective. First type of a game: "a doctor - a patient". It is a basic form of clinical game, that designs the terms of the intellectual professional activity of the doctor, the main purpose of which is to diagnose the disease and treatment of the patient. As a rule, a game played off in pairs. Participants distribute among themselves roles: doctor

and patient. Maybe by turn implementation of roles. A teacher formulates a task for a "doctor" and "patient". Second type – “consillium”.

This game differs from others that not only doctor-counsel participate in a game, but consultants as well. Formally, it is a role play, where different players carry out the roles of doctors of different specialties and level of preparation. It is solved by mutual agreement. The third type of clinical role play – “chamber doctor”. In this game a chamber doctor conducts a few patients. Thus for the design of the most real situation each of these patients is on the different stages of inspection and treatment, on the different stages of the diseases. This game can be simpler or more difficult, depending on whether chamber doctor deal with cardiologic patients or many profiled, when in one chamber patients with the united pathology of different organs and system are concentrated.

The main task of person-oriented education is the disclosure of subject values and meanings [74]. The development of a new economy, in which the main resource is mobile and highly qualified human capital, requires the achievement of a new quality of mass education that will meet the requirements of the new system of social relations and values, the requirements of the new economy. The main result of education is the readiness and ability of young people who graduate from a higher educational institution to bear personal responsibility for both their own well-being and the well-being of society. The important goals of education should be:

- development of students' independence and ability to self-organize;
- the ability to defend one's rights, formation of a high level of legal culture;
- willingness to cooperate, development of ability for productive activity;
- tolerance, tolerance for other people's opinion, the ability to conduct dialogue, seek and find meaningful compromises.

Advantages of business game before other types of studies consist in that a business game imitates the real situations in a future profession, so develops ability to search and work with information, allows considerably to activate creative possibilities of student. Gives an opportunity to study on their own and others' drawbacks without harm for a patient.

The use of active technologies and methods of studies in higher educational medical establishments allows successfully develop professional and cultural competences, to stimulate and activate cognitive activity of students, develop effective clinical thinking.