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ECG DIAGNOSTICS AS ONE OF THE MAIN COMPETENCES IN THE PRACTICE OF A FAMILY DOCTOR - WAYS OF IMPROVEMENT
ЕКГ ДІАГНОСТИКА, ЯК ОДНА З ГОЛОВНИХ КОМПЕТЕНЦІЙ В ПРАКТИЦІ СІМЕЙНОГО ЛІКАРЯ – ШДЯХИ УДОСКОНАЛЕННЯ

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Annotation Electrocardiography (ECG) is a common method of diagnosing heart function in a graphic image, which allows to quickly identify the problem in heart activity. The publication presents the experience of thematic improvement (TI) cycle "ECG in the practice of a family doctor" using a comprehensive analysis to identify gaps in knowledge of clinical ECG diagnostics with elements of a personalized approach to their correction. The article is devoted to the issues of optimization and improvement of postgraduate training of family doctors in ECG diagnostics. Possession of this method is one of the main competencies of primary care professionals, therefore, the ECG is the simplest and, at the same time, extremely informative method of examining the patient. Based on modern requirements for the training of qualified specialists, there is a need to improve the technology of teaching clinical ECG, which can be provided by the formation of a clear algorithm of sequential actions, which in everyday practice of a family doctor should ideally be used at the level of unconditional reflex. The aim of our work was to develop and improve the algorithm of actions in the analysis of clinical ECG in the practice of a family doctor, taking into account the personally identified gaps in the knowledge of outpatients. Participatory teaching methods were used in accordance with the objectives of the study. Proposed approaches for the formation and / or unification of the skill of actions algorithmization in the assessment of ECG in terms of comfortable psychological communication significantly increase the effectiveness of doctors training. Students of the cycle become participants in joint work, immerse themselves in the atmosphere of cooperation with teachers of the department, carefully conduct a general assessment of the ECG according to the algorithm, analyze variants of normal ECG, analyze schematic support, formulate diagnostic criteria. To generalize and practice ECG deciphering skills, cadets analyze clinical cases from real practice, individually or in a team determine the tactics of the family doctor, which allows to work out the algorithm and sequence of actions that can be used in their own professional activities. Particular attention is paid to those aspects of ECG interpretation that have gaps in students' knowledge, which allows to personify the improvement of skills in clinical ECG diagnostics. At the end of the cycle, family doctors are required to take a questionnaire, take a final exam and always have feedback on the satisfaction of expectations from the beginning of training and the results that occur after two weeks of communication and training in this cycle of TI. According to our data, due to mastering the proposed algorithm for decoding the ECG, the acquired level of ECG analysis skills and its effectiveness after the end of the cycle is much higher than it was at the beginning of the TI (within 84.3% - 92.1%). Thus, a comprehensive approach to teaching the cycle of ECG diagnostics with elements of a personalized approach in teaching and the use of participatory teaching methods is a methodologically sound and effective tool that can be recommended to solve the problem of improving the professional competencies of family physicians.

Key words: thematic improvement, ECG-diagnostics, general practitioner-family doctor.

Introduction.

Electrocardiography (ECG), despite more than 100 years of history in clinical practice and innovative technologies achievements, deservedly occupies a leading position in the diagnosis of cardiovascular disease [6,7,8].ECG diagnostics possesses special importance in general medical practice due to high informativeness and accessibility. Therefore, mastery of this method is one of the main basic competencies of primary care professionals. In the modern model of higher education in medical schools, attention is mainly paid to formation of rigidly standardized skills (hardskills), that is those which are performed according to a certain algorithm (ideal skill scenario), form medical competencies and are objectively verifiable in practice.

Based on modern global requirements for training of highly qualified specialists, there is a necessity to improve teaching technologies and develop innovative learning approaches to achievehigh level of professional competence among general practitioners- family physicians. In this case, regarding the basic skills of working with ECG.

For more than twenty years, professional training of interns in the field of STDs and continuous training of family physicians in various thematic cycles of professional development, in this case in ECG diagnostics at the Department of Family Medicine of DSMU Faculty of Education and Science. It should be noted that the staff of the department has significant experience and numerous publications in terms of finding effective approaches and improving the methodology of adult learning [4, 12].

According to work program of the cycle "ECG in the practice of a family doctor", developed by department's staff, the goal of teaching outpatients is to algorithms actions and improve knowledge on the interpretation and evaluation of ECG in the most common pathological conditions in the daily practice of family doctors. Ultimately, it will contribute to the provision of quality medical services to patients in primary health care facilities.

The purpose of the work is to develop and improve the algorithm of actions in analysis of clinical ECG in family doctorpractice, taking into account the personally identified gaps in the knowledge of outpatients. In accordance with the objectives of the study, participatory teaching methods were used, which ensured active cooperation of all participants in the learning process and free involvement of students in solving problems in learning. This approach to learning was chosen taking into aacount that "participation" is a system of relationships that occur in the process of a certain joint activity; is a way of interaction and relationships organized on the principles of equality, voluntariness and complementarity of all its participants; therefore, it is an organizational form of joint activity, which involves the association of persons on the appropriate terms of division of labor and active participation in its implementation; and it is a way of mutual relations, which preserves the rights of each party, clearly agreed and coordinated actions of the participants in the common cause, based on the principles of mutual benefit and equality [9,10,13].

Research methods

The following research methods were used to achieve this purpose:

1. Methods of empirical research: observation, survey (communication,

interview, questionnaire), testing, rating, study of products of examined people (written, graphic, creative and control works), study and generalization of creative experience, pedagogical experiment.

2. Mathematical and statistical methods. The program "Statistics 7" was used for statistical processing of results.

3. Theoretical methods: the study of modern scientific literature.

Integrated approach for collection and processing of information makes it possible to develop and operate a single model of the object at all stages of the study, taking into account the personality-oriented approach.

Results and their discussion

Training on TIcycle of ECG diagnostics was conducted for 84 family doctors.

At the beginning of classes, on the first day of TIcycle, the stage of group formation was coordinated and caused minimal emotional repercussions among participants by analyzing the expectations of doctors from this TU, forming rules of conduct in the group and the possibility of adjusting the lesson plan within 10-20%. with modeling of clinically significant topics for them. Also to identify gaps in knowledge, problematic issues in the analysis and interpretation of ECG, to assess the importance of using this method in everyday outpatient practice. To do this, medical cadets on STDs were anonymously interviewed on these issues on the first day of TI. The survey analysis indicates a high level of ECG method use in the daily practice of family doctors (min 85.0%; max 97.0%). On the other hand, basing on the analysis of input control results of knowledge on ECG diagnostics, we note a rather low level of cadet doctor's knowledge. First of all, on analysis methods (min 35.0%; max 38.0%), interpretation (min 28.0%; max 32.0%) ECG, as well as knowledge and definition of clear criteria for life-threatening conditions (min 31.0%; max 41.0%).This necessitates the development of an individualized approach to address gaps in professional knowledge of ECG diagnostics and improvement of teaching methods. In order to solve these issues an algorithmic guide to ECG - diagnosis of the most common conditions in the clinic of adults and children internal diseases was developed at the Department of Family Medicine FPO DSMU, basing on generalization and structuring a large number of recommendations, manuals and textbooks on this issue[1, 2, 3, 5, 6, 7, 8, 11, 14, 15]and with the of author's clinical tasks with ECG images in the context of specific clinical cases from the practice of family doctors.

Our guide to algorithmization of ECG analysis in the daily practice of family physicians is as follows. The first section presents basic standards of electrocardiographic "propaedeutics" - a method and technique of ECG recording with sequential analysis of ECG's main elements.It includes the following parameters: evaluation of the control millivolt; main rhythm; correctness of rhythm; calculation of heart rate; characteristics of teeth, intervals, segments; determination of voltage; electrical axis of the heart; ECG conclusion; comparison of ECG data with the age and constitution of the patient; physiological features; clinical picture, age of the disease and therapy. Variants for a normal ECG among adults and children are carefully considered, since, according to our survey of family physicians in their daily practice there are difficulties in differentiating the norm and pathology.

The following sections of the guide showECG illustrations and criteria schematically presentedfor hypertrophy of the heart chambers, arrhythmias and conduction, myocardial infarction, certain heart diseases, electrocardiographic syndromes and phenomena, electrolyte disorders and effects of drugs, as well as age-related changes and the most common ECG changes among children.

Almost daily presentation of short theoretical material in the form of a lecture-interview was aimed for discussing standardized approaches for working with ECG results of examined patient, forming an algorithm and generalized awareness of the need to increase motivation for daily work with this tool. Theoretical aspects of obtaining an effective result for interpretation of ECG were presented gradually, which allowed to keep the attention of cadets throughout the course.

After discovering the main theoretical constructs that exist in ECG diagnostics, students immediately practiced the acquired knowledge in small groups with colleagues and had the opportunity to adapt them to different clinical situations from their own experience. During two-week training cycle on ECG diagnostics, we used presentations, flip charts, videos, drawing, small group work and round tables, developed and initiated our own algorithms and strategies for mastering the skill of ECG decoding, reflected after finishing practical tasks, during and after TI.

It should also be noted that during our TI cycle of ECG - diagnostics and mastering the algorithm of ECG assessment (sequential analysis of all handbook sections with the teacher), students become participants in joint work. They are immersed in the atmosphere of cooperation, so working with the handbook, family doctors together with teachers conduct a general assessment of ECG according to the algorithm, analyze variants of normal ECG, analyze schematic support and formulate criteria for diagnosing pathological ECG conditions. This allows to form a method of sequence of analysis and evaluation of ECG for further work in their own professional activities.

After analyzing the ECG illustrations in the handbook, doctors independently develop practical approaches to ECG analysis, using approved atlases and workshops [1, 6, 7, 8, 11]. At the next stage of practical work, doctors analyze the selected versions of the ECG from the portfolio of employees of the department. It allows significantly expanding the knowledge and enriching the clinical experience of both teachers and cadets. It should be noted that in the joint analysis of the ECG inevitably there are some disagreements and often-conflicting interpretations. We remind our listeners that the definition of "ars" is still fair to medicine today - it is both a science and an art [14, 15]. That is why there is a place for intuition and subjectivism in electrocardiography. In such cases, thanks to a joint creative process based on awareness, experience and medical intuition, together we formulate a competent solution.

According to work program and purpose of this cycle of thematic improvement, we also focus on the pathogenetic aspects of the most common diseases, the diagnosis of which is accompanied by changes in the ECG and requires analysis and evaluation, considers the causes, pathogenetic mechanisms, classification and clinical history and specific health problems. Teachers of the ECG diagnostics TI cycle constantly emphasize that in everyday medical practice, patients' complaint of pain is

one of the most common, with chest pain being the most common symptom of STDs. This symptom is often a signal of development of such life-threatening conditions as myocardial infarction, aortic aneurysm, pulmonary embolism and others. Emergencies require emergency diagnosis, differential diagnosis and intensive care in conditions of acute shortage of time, inability to thoroughly examine the patient, and ECG diagnosis can help with high probability to verify the correct diagnosis and determine in a short time with the scope of treatment.

The next step in the cycle of thematic improvement is to analyze clinical cases to determine the tactics of the family doctor. The database of available case studies is constantly updated, providing students with a large library of pre-configured clinical scenarios.

The method of assessing a specific situation, in this case, is used as a learning process during which students improve the skills of careful analysis, systematization and synthesis of information, demonstrating the skills of clinical thinking.

In addition to joint classroom work, the TU cycle has a place for individual communication on urgent issues of ECG diagnostics. Testing and surveys of students of the cycle used to assess the knowledge of cadet doctors, which allows you to assess the level of their knowledge and skills objectively, and allows you to identify specific issues that require improvement.

One of the problems of the cycle, in our opinion, is the consolidation of knowledge in long-term memory. Thus, teachers constantly emphasize that only the support of knowledge and skills in everyday activities will allow doctors not to lose experience and will be an incentive for further professional development.

At the end of the cycle, doctors must pass a questionnaire, take a final exam and always have feedback on expectations at the beginning of training and the results that occur after two weeks of communication and training in this cycle of technical specifications. According to our data, mastering the technique of ECG analysis after the end of the cycle is much higher than it was at the beginning (within 84.3% - 92.1% in each direction).

Thus, a personalized approach to identifying gaps in knowledge and difficulties in professional work and their correction during TI cycle, formation and / or unification of skills of algorithmization of actions in ECG assessment in everyday practice of family physicians, comfortable psychological communication like "peer to peer", significantly improve the effectiveness of training and improving the skills of clinical ECG analysis.

The use of participatory approach in the training of cadets allowed to form a system of education organized on the principles of equality, voluntariness and complementarity of all its participants and achieve coherence of all participants, based on the principles of mutual benefit and equality.

Conclusions:

1. Changing the paradigm of adult learning within the continuous training of physicians of different specialties leads to the search for new technologies, approaches and teaching practices, among which participatory methods are methodologically sound, which led to their introduction into teaching a cycle of thematic improvement for family physicians, also on ECG diagnostics.

2. The development of the author's guide for interpretation of ECG in outpatient practice allowed to correct the gaps in knowledge among cadets who studied at TI cycles on ECG diagnostics.

3. Formation or consolidation of skills of algorithmization of actions in ECG analysis with personification of identification of knowledge gaps of general practitioners and their correction is a methodologically sound approach to teaching and an effective tool that can be recommended to solve the problem of improving professional competencies of family physicians on various issues.

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