

тинговый анализ безопасности омализумаба показал, что на протяжении 2 лет омализумаб получали около 40 000 пациентов, из них у 35 больных зарегистрирован 41 эпизод анафилаксии, возможно, связанной с омализумабом, за весь период лечения. Эти показатели сопоставимы с зафиксированной ранее частотой анафилаксии, составляющей 0,09 %. Летальных исходов в результате этих осложнений лечения не было.

#### **Выводы**

- учитывая опыты применения омализумаба, доказано, что омализумаб (Ксолар) является эффективным и безопасным препаратом в терапии тяжелой аллергической (IgE-обусловленной) БА, не контролируемой высокими дозами ИГКС в комбинации с ДДБА или другими препаратами (антилейкотриеновые, теофиллины), у детей (с 6 лет), подростков и взрослых;
- омализумаб значительно снижает частоту обострений БА, редуцирует симптомы, потребность в короткодействующих  $\beta_2$ -агонистах (КДБА), системных (оральных) ГКС, улучшает контроль БА и повышает качество жизни больных;
- омализумаб следует рассматривать как терапию второй линии для пациентов с персистирующей аллергической астмой от средней до тяжелой степени, которая не полностью контролируется стандартной терапией;
- в настоящее время нет четких рекомендаций относительно длительности лечения омализумабом. Омализумаб предполагает длительную терапию, но как долго ее следует проводить и как долго сохраняется эффект после ее прекращения, может ли терапия омализумабом изменить тяжелое течение БА — вопросы, которые активно изучаются в настоящее время.

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### **ИННОВАЦИОННЫЕ СРЕДСТВА ОБУЧЕНИЯ В УСЛОВИЯХ ПОСЛЕДИПЛОМНОГО МЕДИЦИНСКОГО ОБРАЗОВАНИЯ**

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### **INNOVATIVE TEACHING TOOLS IN CONDITIONS OF POSTGRADUATE MEDICAL EDUCATION**

**Аннотация**

Современность требует от последипломной подготовки врача-стоматолога новых качеств, навыков, умений и личных данных. Важную роль в решении этих задач играют методы и формы организации учебного процесса, направленные на оптимизацию развития клинического мышления. Реформирование подходов, методов и форм обучения в соответствии с требованиями современного образования осуществляется в рамках учебного процесса. Для повышения качества последипломного образования необходимо широко использовать инновационные способы образовательного процесса. Целью этой работы было: провести анализ эффективности и целесообразности применения интерактивных методов и форм обучения в рамках учебного процесса на этапе последипломного образования врачей-интернов-стоматологов. В процессе работы изучили, обобщили и обработали научно-педагогические источники и результаты собственных наблюдений методами литературного синтеза, структурного и логического анализа, основываясь на принципах системного подхода и системного анализа. В статье рассмотрены некоторые методы интерактивного обучения (интерактивная лекция, алгоритмизация лечебного процесса, учебные дискуссии, метод проектной работы, использование кейс-метода), обоснована их необходимость применения и высокая эффективность в формировании клинического мышления, мотивации на углубленное изучение предмета, накопления и анализа клинического опыта. Реформирование подходов, методов и форм обучения согласно требованиям современного образования осуществляется в рамках учебного процесса на этапах последипломного обучения. Использование инновационных форм и методов обучения в рамках последипломной подготовки врачей-интернов по специальности «Стоматология» и врачей-стоматологов способствует приобретению навыков самообразования, формированию клинического мышления, активизации усвоенного материала. Современная подготовка врачей в совокупности с традиционным образованием немаловажна без использования инновационных технологий, позволяющих сформировать их высокую компетентность, обеспечить качество их будущей профессиональной деятельности. Интерактивные программы позволяют врачам обсуждать реальные примеры профессиональных дилемм, преподаватели же, в свою очередь, имеют возможность управлять и влиять на ход дискуссии врачей, опираясь на убедительные методы общения с целью повышения их профессиональной компетенции. Это исследование показывает эффективность инновационных методов обучения на этапе последипломного образования врачей.

**Abstract**

Modernity requires a set of completely new qualities, skills, abilities, and personal features from preparation of doctors at the postgraduate stage of their education. An important role in solving these tasks is played by methods and forms of organization of the educational process, aimed at optimizing the development of clinical thinking. Reforming approaches, methods and forms of training in accordance with the requirements of modern education is carried out as part of the educational process. To improve the quality of postgraduate education, it is necessary to widely use innovative methods of the educational process. The purpose of this work was to: analyze the effectiveness and appropriateness of the use of interactive methods and forms of training within the educational process at the stage of postgraduate education of interns and dentists. Scientific-pedagogical sources and the results of own observations have been studied, summarized and processed by using methods of literary synthesis, structural and logical analysis, based on the principles of systemic approach and systemic analysis. The article discusses some methods of interactive teaching (interactive lecture, algorithmization of the treatment process, educational discussions, the method of project work, the use of the case method) and substantiates their need for application and high efficiency in the formation of clinical thinking, motivation for in-depth study of the subject, as well as accumulation and analysis of clinical experience. The reform of approaches, methods and forms of education according to the requirements of modern education is carried out within the educational process at the stages of postgraduate training. The use of innovative forms and methods of teaching in the framework of postgraduate training of interns (in the specialty: "Dentistry") and dentists contributes to the acquisition of skills of self-education, the formation of clinical thinking, as well as the activation of the learned material. Modern training of doctors in combination with traditional education is unthinkable without the use of innovative technologies that allow them to form their high competence, and ensure the quality of their future professional activity. Interactive programs allow physicians to discuss real-life examples of professional practice, and teachers, in turn, are able to supervise and influence the course of the physician discussion, relying on compelling communication methods to enhance their professional competence. This study shows the effectiveness of innovative teaching methods in the postgraduate doctoral education phase.

**Ключевые слова:** инновационные средства, медицинское последипломное образование.

**Keywords:** innovative teaching, postgraduate medical education

*It is possible to learn only those things that you love.*

*Johann Wolfgang von Goethe*

Nowadays, the issues of medical education have gained particular relevance and sound due to changes in socio-economic relations and modernization of the

health care system. Medical education in Ukraine is an integral part of the national education and health care system.

Over the last decade, a significant modernization of medical education has taken place, and new approaches in the preparation of medical students and

their further improvement during the internship period have been formed. Medical education is constantly evolving, gradually but substantially moving from traditional methods (such as textbooks, lectures) to more complex approaches that use modern information and communication technology tools (e.g., e-learning, interactive algorithms, computer modeling, virtual patients) [10, 13]. Such approaches have shown to enhance and improve the leaning skills of medical students, interns, medical cadets during the postgraduate stages, compared to traditional methods.

The main focus of postgraduate education, especially at the stage of specialization (internship), is to find innovative forms and methods of training aimed at improving the quality of specialist training and their self-improvement [7]. These are, first and foremost, new forms, methods and means of learning that encourage active mental and practical activity in the process of mastering the learning material [2]. The use of such a system of methods is primarily aimed not at learning the already known from a teacher, its memorization and reproduction, but on independent mastering of knowledge and skills in the process of active mental and practical activity.

Modernity requires a set of completely new qualities, skills, abilities and personal features from the training of doctors. In addition to having a deep theoretical knowledge, doctors should be able to apply specific methods of diagnosis, treatment and prevention of dental diseases in unusual situations, be able to generalize and analyze the discovered facts, optimize the solutions offered by the techniques and methods of treatment of diseases of the oral cavity tissues and organs, learn to conduct scientific research, master the methods of statistical analysis, understand the need for continuous professional development, independent learning of new knowledge, and also have a creative thinking and activity. It is important to master social communication skills, to be able to defend one's point of view, to take responsibility, to be tolerant, to have communicative competencies, to speak one or two foreign languages [3].

The purpose of this work was to: analyze the effectiveness and appropriateness of the use of interactive methods and forms of training within the educational process at the stage of postgraduate education of interns and dentists.

**Materials and methods of research.** Scientific-pedagogical sources and the results of own observations have been studied, summarized and processed by using methods of literary synthesis, structural and logical analysis, based on the principles of systemic approach and systemic analysis.

**Results and their Discussion.** Specificity of education of the third millennium involves the use of various modern technologies. Along with the vast introduction of technology into the process of education, the process of its humanization becomes inevitable. The purpose of innovative approach to postgraduate education is to reach a qualitative change in the personality of a dentist or intern physician compared to the traditional system. This is made possible by the introduction into the educational process of didactic programs,

forms and approaches aimed at developing the ability to motivate actions, to navigate independently in the information space, and to form creative and non-template thinking [2, 5].

The reform of approaches, methods and forms of education according to the requirements of modern education is carried out within the educational process at the stages of postgraduate training.

In the traditional organization of the educational process, a one-way form of communication is used as a mean of transferring and generating knowledge. The main source of information, in this case, is the teacher with his level of knowledge, experience and intelligence. One-way communication is characteristic of lectures, and it also can take place during seminars. This may include answers of interns to questions posed by their teachers, a reproduction of lecture material. Such form of communication which is traditional in our school has several disadvantages and needs improvements. First of all, this form of passive training is not effective enough. The second reason for the imperfection of this form is related to access to sources of information and is justified only in the case where it is impossible to obtain knowledge in any other way, except from the lecturer. The teacher does not always use a material that is original and not accessible in the information space. Only original methods of presentation, logic and teaching style are a common thing. It certainly testifies to the high skill of the teacher, but somebody else's structure of knowledge, even if beautifully presented, will never become your own.

Traditional presentation of the lecture material should be combined with the involvement of interns and cadets into active discussion. Listeners are given the opportunity to express their opinions, or information they have used from other sources, and to ask questions. The lecture becomes an active element of educational process that includes feedback from the listeners. All lectures are presented in a multimedia version, which offers the opportunity for them to be sufficiently illustrated. And some lectures are made in the form of video films. In this case, the teacher reserves some time to discuss questions or comments and to summarize the material [6].

One of the progressive approaches, the one that combines traditional methods of education and technological progress, is the theory of algorithms, without which the theory of programming, mathematical logic, and cybernetics cannot do. To date, the concept of "algorithm" has gone beyond mathematics and has become applicable in various fields: economics, medicine, pedagogy.

The algorithmization of the healing process has become very popular as a result of the fact that the quality of medical care is constantly evaluated; quality management systems are being developed and implemented in order to improve the level of services provided in the field of medical care. It is obvious that a physician who thinks clearly and in a structured manner is able to respond more effectively and immediately, in both planned and emergency situations, which occur so frequently in medicine [5].

Visualization of algorithmic schemes of sequences of operations by means of various multimedia is an integral part of modern training and is perceived by the students as a very effective method of teaching. Combining algorithms and multimedia materials creates unique learning objects that make it possible for students to understand complex issues more carefully and deeply.

Effective training in medical science requires flexibility, energy and dedication of the teacher. The main task of a teacher is to teach a future doctor the correct clinical thinking. At the same time, medical science also requires from teachers to be able to assess the needs of their students and understand changes in teaching styles and approaches. Teaching cannot be done based only on existing algorithms, or, in other words, protocols. Medical protocol for a particular disease regulates a method of treatment, but rapidly advancing technologies, especially in dentistry, must be adopted first and foremost by an educator himself, in order to teach and enable a doctor to develop professionally in order to keep up with the times.

In addition, it is also necessary to have a notion and vision of the flaws inherent to the standards. Each patient and his illness are individual, personified. Therefore, the standards do not take into account the peculiarities of patients, diseases and their treatment. In the standards, the main part should be their algorithmization, i.e. medical and technological orientation of treatment. But blind adherence to standards can deprive a doctor of the creative principle and individual approach, which can ultimately hurt both the patient and the doctor.

Therefore, the main role of a teacher should emphasize that the standards should be implemented with implication of the etiopathogenetic orientation of treatment, and the choice of technology should always remain with the doctor, within his knowledge and capabilities, the patient's features, the nosological form and course of the disease, as well as the patient's consent to treatment.

Practical work shows that in the organization of classes with medical interns and cadets, interactive teaching methods should dominate. They help to enhance the activation in the mastering of theoretical material, form a reasoned opinion, relationships and behavioral skills, stimulate self-education, and excite interest [7, 12].

The essence of the interactive teaching method is reflected in one Chinese fairy tale, which says: "Tell me – and I'll forget; show me – and I will remember; let me do it – and I'll understand." When using interactive methods, a teacher does not provide the already known answers and knowledge, but encourages interns to search independently.

Educational discussions are a form of interactive learning, during which interns exchange their thoughts and ideas on issues under discussion. Discussions get more and more increasingly used in the preparation of interns and cadets [8, 11]. Forming the ability to critically analyze and synthesize information based on fundamental medical knowledge, as well as the ability to

justify and defend one's knowledge – these skills are formed by educational discussion.

In order to encourage medical cadets and interns to work independently (because their independent work is the most valuable and important thing) and preserve motivation to study (because it is simply impossible to teach a doctors something, if he does not want to know it!), scientific and practical conferences on different topics of the curriculum are organized. For this purpose, cadets or interns prepare essays and reports on the topic of study; each speaker gets his reviewers and opponents appointed. When covering the issues of discussion, they work independently on literature sources, use Internet data, and summarize their experience in receiving patients with relevant diseases. In this way, cadets and interns are trained on their own, while the department educator is an assistant and controller of this process, which, in turn, encourages him to study the issue more extensively and deepen his knowledge.

The method of project work of cadets and interns can also be actively used [9]. Motivated study of the subject prompts the cadets to the most complete and sophisticated coverage of the material, which, in a good sense, even takes a form of competition.

An in-depth study of material from bibliographical sources allows the teacher to focus during lectures or workshops or seminars only on unexplained issues or problems, or on information related to new methods of diagnosis or treatment, which will facilitate better assimilation of new information by medical cadets and interns. Thus, this model of educational process is positively used by both interns and medical cadets.

Activation of the cognitive activity of a medical intern, the development and formation of clinical thinking is developed by the case method which is applied during practical classes. Case study, or case-specific method, is a teaching technique, which is based on the use of descriptions of real clinical situations [1, 4]. This is a non-play-based simulation method of active learning, which is considered as a tool that allows you to use the existing theoretical knowledge in order to solve practical problems. Essentially, cases are complex situational tasks. It is advisable to use them in the absence of thematic patients related to the topic of a corresponding class, as well as in the organization of independent work of interns. Case is both a task and a source of information for a particular problem. To replenish the list of cases, both typical and non-typical interesting clinical cases of particular patients and the results of their examination are used. The tasks of the cases may include issues of diagnostics of dental diseases, differential diagnostics and drawing up a rational treatment plan for the investigated pathology.

When working on a case, doctors conduct search and analysis of additional information on related subjects. They form clinical thinking, as well as the ability to solve problems, communicate, apply subject knowledge in practice, tolerate and take responsibility. It is also important that the analysis of real clinical situations positively influences the professionalization of interns, generating interest and motivation for the study of the subject and practical activity.

At the department of dentistry of the faculty of postgraduate education, interns are actively involved in the development of skills required in scientific work. In the course of scientific research, they develop the skills of collecting material, analyzing bibliographical source data on the problem of scientific research, learning to conduct critical reviews of published works [12]. In the course of research work, interns have mastered the skills of processing and analysis of material, the skills of generalizing scientific research, the skills of participating in discussion and mastering new knowledge. They defend their work at inter-departmental scientific conferences.

One of the priorities of working with medical interns and cadets is to improve their practical skills. Training a modern qualified dentist is not possible without learning the latest technologies.

Dentistry is experiencing a real boom, since many services that were previously unavailable to patients are now available. Currently, new technologies are everywhere, for instance, bone repair, laser root canal treatment, and more. All these technologies are already used in the educational and medical processes at the department.

Teachers pass the knowledge of modern approaches and methods of diagnostics and treatment “from hand to hand” during joint admissions of patients in the course of practical classes.

**Conclusions.** The use of innovative forms and methods of teaching in the framework of postgraduate training of interns (in the specialty: “Dentistry”) and dentists contributes to the acquisition of skills of self-education, the formation of clinical thinking, as well as the activation of the learned material. Modern training of doctors in combination with traditional education is unthinkable without the use of innovative technologies that allow them to form their high competence, and ensure the quality of their future professional activity.

Modern dental equipment and the latest technologies combined with a variety of innovative techniques in postgraduate training allow preparing a dentist for skilled work in accordance with the requirements of today. And the introduction of innovative methods of teaching into the educational process by the department staff allows to train medical interns according to European and world standards.

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