

## ВИСВІТЛЕННЯ ПРИНЦИПІВ ДОКАЗОВОЇ МЕДИЦИНИ ПРИ РОЗГЛЯДІ ПИТАНЬ РАЦІОНАЛЬНОЇ ФАРМАКОТЕРАПІЇ ЗІ СТУДЕНТАМИ-МЕДИКАМИ

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## CLARIFICATION OF PRINCIPLES OF EVIDENCE-BASED MEDICINE WHEN CONSIDERING ISSUES OF RATIONAL PHARMACOTHERAPY WITH MEDICAL STUDENTS

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**Філіпец Наталя, Філіпец Елена, Кметь Ольга. Освещение принципов доказательной медицины при рассмотрении вопросов рациональной фармакотерапии со студентами-медиками. Цель исследования.** Акцентировать внимание на необходимость информирования студентов про достижения доказательной медицины в области рациональной фармакотерапии при рассмотрении вопросов, касающихся выбора лечения и предотвращения проблем, связанных с приемом лекарственных средств. **Методология.** В исследовании использованы описательный и сравнительный методы. **Научная новизна.** Показаны преимущества преподавания основ фармакотерапии патологических процессов с использованием данных доказательной медицины для формирования умений критически оценивать информацию научно-практического характера и делать правильный выбор на благо пациента. **Выводы.** Такой подход повышает уровень компетентности студентов-медиков в вопросах рациональной фармакотерапии. **Перспективы дальнейших исследований.** Анализ эффективности преподавания фармакотерапии с учетом результатов анкетирования студентов.

**Ключевые слова:** студенты-медики, рациональная фармакотерапия, доказательная медицина.

In institutions of higher medical education, the study of pharmacotherapy is implemented in accordance with current educational programs in pharmacology and clinical disciplines. Teaching the principles of rational therapy anticipates mastering the basics of pharmacology and coverage of modern treatment strategies, and is ineffective without the involvement of evidence-based medical databases. Clinical decisions about drug treatment depend primarily on practical skills, experience and knowledge. At the same time, having reliable information based on evidence-based assessment of the quality of medicines will provide the best result for the doctor and the patient. At present, evidence-based medicine is attracting more and more attention from teachers of higher medical educational institutions. In the absence of a perfectly tailored program, the only correct approach is the interdisciplinary integration of evidence-based medicine, in line with major trends in the health care system<sup>1</sup>. Awareness of the importance of using the most well substantiated evidence of efficacy and safety of medicines will help medical students to become competent practitioners capable of making clinically sound decisions<sup>2</sup>.

**Aim of the research.** The aim is to emphasize the need to highlight the positions of evidence-based medicine when discussing with students issues of pharmacotherapy related to the choice of treatment and prevention of problems

associated with the use of drugs.

**Methods.** The study uses descriptive and comparative methods for evaluating the teaching of pharmacology of drugs, which determine the benefits of coverage of evidence-based medicine for the formation of student competencies in the field of rational pharmacotherapy.

**Presentation of the main material.** Despite the active use of situational tasks in the study of pharmacology, as close as possible in content to clinical cases, it is difficult for students to apply theoretical knowledge in practice. Difficulties are associated both with the large initial amount of educational material in textbooks, and the additional filling in the lectures of the lack of information about new drugs in the pharmaceutical market of Ukraine and the world. In addition, a modern criterion for assessing students' knowledge is the results of the Unified State Qualification Exam (USQE) for applicants for the Master's degree in the field of knowledge "22 Health Care". The first stage of USQE is the exam in general scientific disciplines "Krok 1", which is taken in the third year after studying the basic fundamental medical disciplines. The specificity of "Krok 1" is a test control, where you are asked to choose one correct answer from the five proposed, which encourages the student to practically memorize the stated facts, at best - taking into account only the keywords of the task. It is clear that keywords have a significant semantic load and reflect

<sup>1</sup> Murray H., Walker M., Dawson J., Simper N., Maggio L.A. Teaching Evidence-Based Medicine to Medical Students Using Wikipedia as a Platform. *Acad Med*, 2020, Vol. 95 (3), P. 382-386, DOI: 10.1097/ACM.0000000000003085 [in English].

<sup>2</sup> Atwa H., Abdelaziz A. Evidence-based medicine (EBM) for undergraduate medical students: A six-step, integrative approach, 2017, *Medical Teacher*, Vol. 39 (1), P. 27-32. URL: <https://doi.org/10.1080/0142159X.2016.1254750> [in English].

some aspects of the content of the question, but are not a guarantee of successful practice, where critical thinking skills are required when it comes to a comprehensive approach to health care. Regular assessment of students in a test format is due to the objective need to ensure the appropriate level of knowledge for the successful completion of the stages of USQE.

It should be borne in mind that the popularity and excessive enthusiasm for the test method of control by educators complements the range of causes of mechanical memorization, and therefore does not meet the purpose and objectives of medical disciplines, as well as the requirements for professional competencies of future physicians. The question of whether test scores should be considered key results of preclinical medical education is being actively discussed, but remains open<sup>3</sup>.

At present, to minimize the gap between theoretical knowledge and the realities of practical medicine, it is advisable to use interactive learning technologies focused on the development of skills and abilities in the field of pharmacotherapy, which will serve as the basis for a professional approach to drug treatment. To this end, the study of pharmacology uses tasks with a simulated clinical situation, the consideration of which involves not only one correct answer, but the characteristics of the drug for step-by-step justification of the drug of choice. The advantages of certain pharmacological classes with the desired therapeutic effect, but different in target effects are discussed; their separate groups and representatives are characterized; conformity of pharmacodynamics to pathogenetic features of process is estimated; selectivity of action; doses and routes of administration of drugs, the range of adverse reactions. The study of pharmacology does not involve in-depth consideration of approaches to combined drug treatment. However, to better master the basics of drug correction of organs and systems, a combination of drugs is considered in the coverage of measures to prevent side effects. Consideration of such a number of issues involves the participation of everyone in the discussion of the situational task, students' understanding that the quality of the process, as well as the result of implementation, depend on individual preparation for practical training. Thus, the use of an interactive method provides an opportunity to outline the problem, to compose the main issues of the lesson and consider them within the test task, to facilitate the holistic perception of educational material by the student audience.

At the same time, the teaching of pharmacotherapy focuses on the acquisition of competencies for the rational use of drugs of different classes. Problem-oriented teaching methods are effective in teaching issues of rational pharmacotherapy<sup>4</sup>. In order to make the right choice and anticipate drug-related complications, a student who has mastered the discipline of pharmacology must be able to use the recommendations of evidence-based medicine. The

introduction of the principles of evidence-based medicine provides a combination of science and practice and plays an important role in choosing the most reliable drug treatment, protects against excessive and ineffective prescriptions. There is no doubt that the practice of evidence-based medicine benefits from self-education and, largely, from practical experience. However, the results of the study of factors influencing the interest of physicians in proven scientific facts and the implementation of the evidence-based approach in clinical practice, showed that such positions are primarily provided by medical education and training in evidence-based medicine<sup>5</sup>.

In practical classes when considering situational clinical problems, to obtain a better answer with coverage of the positions of evidence-based medicine, it is possible to offer students a model of independent search for information, directing them to available resources of evidence-based medicine<sup>6</sup>. It should be noted that for successful orientation in searching systems, skills of maximum use of data from computer databases of evidence-based medicine are required. Additional workload, even if it is a kind of independent work of the student, still needs methodical consultations. Thus, the teacher's task is to provide evidence-based information on the quality of drugs, the list of which is in the program of study of the discipline of pharmacology. It is during training that the foundations of the ability to critically analyze and select a drug using the best modern achievements should be laid. This process involves the skills of using research-proven data on the reliable efficacy of drugs, the absence of nosological restrictions, a high level of safety profile, the possibility of long-term use and combination to increase the integrated effectiveness of treatment.

Experience has shown that consideration of clinical situational problems and decision-making taking into account the positions of evidence-based medicine involves mastering the skills of critical thinking of response options and the best choice of drug to solve a particular problem. At the same time, this approach confirms the importance of mastering the program issues of general pharmacology, classifications, methodology of comparative evaluation of drugs, prognosis of side effects of drugs and its appropriate correction. Then the competencies that the student will obtain while studying pharmacology will further ensure the effectiveness and safety of drug therapy<sup>7</sup>.

Thus, the coverage of the positions of evidence-based medicine in considering the issues of rational pharmacotherapy provides the advantages of the process of forming a holistic system of theoretical foundations of treatment. After all, for successful medical practice, the student must learn how to use and critically evaluate the evidence to make an adequate clinical decision for the benefit of the patient.

**Conclusions.** When considering the issues of pharmacotherapy at the present stage of teaching

<sup>3</sup> Chen D.R., Priest K.C., Batten J.N., Fragoso L.E., Reinfeld B.I., Laitman B.M. Student Perspectives on the "Step 1 Climate" in Preclinical Medical Education. *Acad Med*, 2019, Vol. 94 (3), P. 302-304. DOI: 10.1097/ACM.0000000000002565 [in English].

<sup>4</sup> Toklu HZ. Problem based pharmacotherapy teaching for pharmacy students and pharmacists. *Curr Drug Deliv*, 2013, Vol. 10 (1), P. 67-70. DOI: 10.2174/1567201811310010012 [in English].

<sup>5</sup> Paulsen J., Al Achkar M. Factors associated with practicing evidence-based medicine: a study of family medicine residents. *Adv Med Educ Pract*. 2018, Vol. 2018 (9), P. 287-293 URL: <https://doi.org/10.2147/AMEP.S157792> [in English].

<sup>6</sup> Nicholson J., Kalet A., van der Vleuten C., de Bruin A. Understanding medical student evidence-based medicine information seeking in an authentic clinical simulation. *J Med Libr Assoc*, 2020, Vol. 108 (2), P. 219-228. DOI: 10.5195/jmla.2020.875 [in English].

<sup>7</sup> Tebala G.D. The Emperor's New Clothes: a Critical Appraisal of Evidence-based Medicine. *Int J Med Sci*, 2018, Vol. 15 (12), P. 1397-1405, URL: <https://www.medsci.org/v15p1397.htm> [in English].

pharmacology, it is important to highlight the principles of evidence-based medicine. An interactive method with problem-oriented discussions is effective for integrating evidence into the process of studying the pharmacology of drugs that affect organs and systems. This approach is important and useful for the formation of professional motivation and increases the level of competence of medical students in matters of rational pharmacotherapy.

**Prospects for future research.** In the future it is planned to analyze the effectiveness of teaching pharmacotherapy taking into account the results of questionnaire of students.

**Філіпець Наталія, Філіпець Олена, Кметь Ольга.** **Висвітлення принципів доказової медицини при розгляді питань раціональної фармакоterapiї зі студентами-медиками.** **Мета дослідження.** Акцентувати увагу на необхідність висвітлення позицій доказової медицини при розгляді питань фармакоterapiї, що стосуються вибору лікування і запобігання проблем, пов'язаних із прийомом лікарських засобів. **Методологія.** У дослідженні використано описувальний та порівняльний методи аналізу. **Наукова новизна.** Показано переваги викладання основ фармакоterapiї патологічних процесів із використанням даних доказової медицини для формування вмінь критично оцінювати інформацію науково-практичного характеру і робити правильний вибір на благо пацієнта. Висновки. Такий підхід підвищує рівень компетентності студентів-медиків у питаннях раціональної фармакоterapiї. **Перспективи подальших розвідок.** Аналіз ефективності викладання фармакоterapiї з урахуванням результатів анкетування студентів.

**Ключові слова:** студенти-медики, раціональна фармакоterapiя, доказова медицина.

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