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INTERACTION BETWEEN THE TRADITIONAL AND INNOVATIVE APPROACHES IN TRAINING PHARMACISTS FOR THEIR PROFESSIONAL WORK IN THE CARPATHIAN REGION

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Abstract. This paper presented the modern automated diagnostic systems and pharmacological rehabilitation technologies. There is a lack in the raw material base of many medicinal plants due to the bad environmental situation. Today natural resources were so depleted that Arnica was listed in the Red Book of Ukraine. Nowadays the training of specialists in the field of pharmacology requires not only new approaches associated with the development of medical science and computer technology. We have national traditions for the use of plant resources, particularly in the Carpathian region. Much of the research in the field of pharmacology requires new approaches in the analysis of clinical trails of new medical products. Pharmaceutical practice is focused on the types of professional activities. The ethical aspects related to medicines are equally significant. In the professional work of pharmacists information technologies are used on such stages as the creation of a medicinal product. The research of resources is conducted all over the world and is used to record all types of natural resources, but this term is most commonly used to define plant resources. The pharmacist should be able to adjust the recipes prescribed by doctors and know the rules of drug intake and provision. Regarding plant medicines, the Carpathian region has a rich heritage of traditional use of medical plants. Nowadays modern conditions require the active use of new technologies in pharmacist's professional activity. Particularly acute is the problem of compatibility of medicinal substances and their interaction in the pharmaceutical phase as well as in the process of distribution and absorption. The Carpathian region which is extremely rich in medical plants should be constantly studied and integrated with the modern knowledge and capabilities.

Keywords: training pharmaceutics, medical plants, training programs.

Informatization of society, widespread introduction of computers and the latest technologies impose the new requirements for the training of specialists. The introduction of modern automated diagnostic systems and pharmacological rehabilitation technologies require an optimal combination of traditional methods of training specialists and new approaches. With the development of science and technology some specialties are disappearing and others are emerging. Therefore, the training of specialists should be adjusted. The formation of pharmacists, as was noted at the 2002 WHO meeting (Malta), should take into account the prognosis of required services of pharmacists for a period of 2000-2025. In June 2002 the WHO meeting on the problems of pharmaceutical education was held on the island of Malta. The WHO developed the recommendations on identifying professional knowledge and skills and the list of subjects to be included in the curriculum³.

Now there is a lack in the raw material base of many medicinal plants due to the bad environmental situation, which resulted in the reduction of the areas of natural phytocenoses, environmental pollution, etc. For example, although 20 years ago there were considerable reserves of Arnica on the spurs of the Black Mountains, Svydovets and Gorgany, these natural resources were so depleted that Arnica was listed in the Red Book of Ukraine.

Nowadays the training of specialists in the field of pharmacology requires not only new approaches associated with the development of medical science and computer technology, but also thoughtful analysis and the use of national traditions for the use of plant resources, particularly in the Carpathian region.

Much of the research in the field of pharmacology requires new approaches in the analysis of clinical trails of new medical products. Special attention should be paid to the use of modern information systems which allow making regular contacts between pharmaceutical companies and hospitals. The introduction of automated diagnostic systems, the use of the achievements of molecular biology, comprehensive medical and rehabilitation pharmaceutical technologies involve a combination of classical forms of teaching with the new approaches to training doctors and pharmacists².

Pharmaceutical practice is focused on the following types of professional activities: controlling the intake and rational use of medicines by patients; informing doctors and patients about new drugs; using modern information systems; instrumental, technical, software and pharmaceutical support of the advanced medical technologies. This process unites intellectual potential of experts from various fields of science and technology. Also it is characterized by formulation of the field of expertise integrated in its structure – Medical and Technical Sciences; use of the new classification of medical products, determination of the probable success or failure of a new medical product using certain mathematical models; research of the therapeutic possibilities of products with the similar pharmacological properties, drug development trends; the synthesis of new medicines with different pharmacological activity; development of the coding systems that describe different effects of certain medicines and their mechanisms and effectively choose medicines by similar characteristics. The ethical aspects related to medicines are equally significant – from the research and production to the support of marketing departments and manufacturers of pharmaceutical products. All the above activities should be implemented in the pedagogical process of pharmaceutical educational institutions.

The problem of training specialists who can find new directions of the use of information and computer technologies and considering national traditions of treatment requires further systematic pedagogical research. The purpose of the articles to justify the expediency of interaction between the traditional and innovative approaches in training pharmacists for their professional work in the Carpathian region. In the professional work of pharmacists information technologies are used on such stages as the creation of a medicinal product, pharmacological screening, marketing researches of the pharmaceutical sector, registration of medicinal products and information and referral services of pharmaceutical companies and pharmacies. The functions of pharmacists are constantly changing which should be considered in determining the skills and abilities of specialists for the future.

The integrative links between clinical and pharmaceutical subjects with the use of information technologies promote the consistent development and generalization of students' knowledge at different stages of learning, provide a synthesis of knowledge and skills, stimulate mental activity and ensure the effective assimilation of knowledge and skills on how to use information technologies in professional work. The main task of the pharmacist is aimed at improving the health care of the patient, creating conditions for the safe and rational use of medications.

Any objects of plant origin, which can be used with existing technologies are called plant resources. The research of resources is conducted all over the world and is used to record all types of natural resources, but this term is most commonly used to define plant resources¹. Pharmacology is the component part of many sciences such as chemistry, biophysics, pharmacy, medicine and biology. By studying the mechanism of action of drugs, it formulates the theories of directed search for new medicines, constitutes a theoretical basis for the rational use of medications for chemists and technologists. Apart from pharmacodynamics and pharmacokinetics, pharmacists need to have

knowledge about the toxic properties of drugs, which is the subject of medicinal toxicology. That is because all drugs, or almost all of them, under certain conditions can have not only positive effects on humans, but also can cause negative side effects, even serious complications. This severely limits the effectiveness of treatment and can cause serious damage to the health and even death.

The pharmacist deals with the great number of medications. For this reason he or she must know the effects of drugs on humans and the classification of drugs based on their pharmacological properties and practical application. Moreover, the pharmacist should be able to adjust the recipes prescribed by doctors and know the rules of drug intake and provision.

The application of medicinal plant drugs for curing has become popular again. The favourable effects of most of them have been examined and proven. Regarding plant medicines, the Carpathian region has a rich heritage of traditional use of medical plants. A rich source of arnica can be found there. For centuries it has been used for treating muscle injuries, bruises, pinches or sprains. Nearly 150 active ingredients have been found in the plant. Another important medical plant is wild thyme (*Thymus serpyllum*). It has been used to make tea for coughs and bronchitis as well as antiseptic. *Sieversia Montana* has been used to treat gastrointestinal disorders. For treatment of skin rashes and wounds sap of fresh plants or their leaves and flowers were often used. In Boykivshchyna bean leaves and raw onion were applied onto purulent wounds. Fresh leaves of some plants and raw vegetables were considered to be effective painkillers. Throughout the Carpathians cottage cheese, sliced potatoes, horseradish leaves, beetroots leaves and mint leaves were used to treat headaches putting them onto the forehead. Fresh or sour cow's milk was used to wash eyes in case of eye pain. Hot milk with butter or lard was recommended to drink in case of a common cold. Milk decoction of sage or yarrow was used to treat toothaches. Purulent wound were treated by applying the old penny bun (*Boletus edulis*) previously boiled in milk.

Nowadays modern conditions require the active use of new technologies in pharmacist's professional activity. For this purpose it is necessary to develop programs of training specialists and introduce information technology in medical science and healthcare. The existing training programs in Medical Informatics are characterized by the interdisciplinary and multi-dimensional approach. One of the fields of medicines is often chosen as the basis for most training programs while computer science is given a secondary role. In medical educational institutions the course "Basics of Information Technology" has been introduced. A model of "data – information – knowledge" which implies the problems and tasks of information technology is considered. This causes allergic reactions and so-called "medicinal disease".

In clinical practice a wide range of medicals, which, along with therapeutic, have adverse effect on the human body. Particularly acute is the problem of compatibility of medicinal substances and their interaction in the pharmaceutical phase (during the direct preparation) as well as in the process of distribution and absorption (during the pharmacokinetic phase). These issues can be successfully solved by professionals – pharmacists. The main task of the pharmacist is aimed at improving the health care of the patient, creating conditions for the safe and rational use of medications. The professional pharmacist should use modern information technology which allows making regular contacts between pharmaceutical companies and medical institutions. Only those pharmaceutical manufacturers that use innovative technologies in the analysis of clinical introduction of new medicines can achieve the greatest success.

Consequently, in pharmacist's professional work information technologies are used on the following stages: the creation of a medicinal product, pharmacological screening, marketing researches of the pharmaceutical sector, the use of information technologies in the work of pharmaceutical companies and pharmacies. However the maximum efficiency can be achieved only by combining seamlessly the latest achievements of computer science and traditions with centuries of experience. The Carpathian region which is extremely rich in medical plants should be constantly studied and integrated with the modern knowledge and capabilities. These aspects should be taken into account in terms of the process of training specialists and reflected in the qualification characteristics description.

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