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**SCIENTIFIC AND METHODOLOGICAL FOUNDATIONS OF
TEACHING “HISTOLOGY, CYTOLOGY AND EMBRYOLOGY”
DISCIPLINE IN FOREIGN MEDICAL STUDENTS**

Стрімкий розвиток інформаційних систем та інновацій у системі освіти й науки спонукає до впровадження змін у процес навчання іноземних громадян у медичних вишах України. Вивчення базових морфологічних дисциплін на перших курсах навчання в медичному університеті стає основою для подальшого успішного засвоєння клінічних дисциплін і розвитку клінічного мислення майбутніх лікарів будь-яких спеціальностей. Стаття розглядає систему викладання фундаментальної медичної дисципліни «Гістологія, цитологія та ембріологія» іноземним студентам на кафедрі гістології, цитології та ембріології Буковинського державного медичного університету і шляхи впровадження сучасних методів викладання та контролю знань студентів.

Ключові слова: гістологія, цитологія, ембріологія, іноземні студенти.

Educational and qualification level of future medical specialists proves competitiveness of national system of medical education in Ukraine for foreign students in the field of European market of educational services. Studying basic morphological disciplines during first year in medical university is necessary for further successful mastering clinical thinking and understanding of diseases pathological pathways. This article depicts scientific and methodological foundations of teaching “Histology, cytology and embryology” discipline at the department of Histology, cytology and embryology in Bukovinian State Medical University and ways of innovational teaching and control methods’ implementation.

Keywords: histology, cytology, embryology, foreign students.

Стремительное развитие информационных систем и инноваций в системе образования и науки требует внедрения прогрессивных изменений в процессе обучения иностранных студентов в медицинских вузах Украины. Изучение базовых морфологических дисциплин на первых курсах обучения в медицинском университете является основой для дальнейшего успешного усвоения клинических дисциплин и развития клинического мышления будущих врачей любых специальностей. Статья рассматривает систему преподавания фундаментальной медицинской дисциплины «Гистология, цитология и эмбриология» иностранным студентам на кафедре гистологии, цитологии и эмбриологии Буковинского государственного медицинского университета и пути внедрения современных методов преподавания и контроля знаний студентов.

Ключевые слова: *гистология, цитология, эмбриология, иностранные студенты.*

Educational and qualification level of future medical specialists proves competitiveness of national system of medical education in Ukraine for foreign students in the field of European market of educational services. Ukrainian educational methods should highly meet international standards in modern educational innovations and conditions. That's why the main purpose for higher state medical establishments in Ukraine is to create effective methods for foreign students learning and appropriate tools of knowledge control.

Mastering medicine knowledge during study in medical university by students highly depends on their motivation level, which may be formed by introducing high percentage of practical fraction during academic lesson. Practical-oriented classes with clinical interconnection should be introduced from the first year of studies for a high involvement of future doctors into everyday practical skills of a medical practitioner [4].

The basis aspects of morphology, namely histology, cytology and embryology is a basic discipline. Solid knowledge on structural components of cells, tissues, organs and the processes of their development will provide a deep

understanding of morphogenesis and clinical thinking of a future medical practitioner [3].

Department of Histology, Cytology and Embryology in Higher State Educational Establishment of Ukraine “Bukovinian State Medical University” (BSMU) provides academic lessons and lectures for foreign students of 1201 “Medicine” specialization in the fields of General Medicine and Dentistry. The curricula of training specialists to support approved branch standards of higher education are based on The Orders of the Ministry of Public Health of Ukraine "On approval and introduction of a new curriculum of training specialists in specialties "General Medicine", "Pediatrics", "Medical Prophylaxis".

Fundamental morphological disciplines are studied during lectures, practical and consulting classes that are mutually complement one another. In addition, department provides foreign students with individual work for deeper scientific investigations on curriculum topics [2].

An integral part of modern high medical education also includes providing students with computer-oriented learning tools. Rapid development of global information networks contributes to overall progress of the educational sector. Obviously this is one of the fastest, affordable, convenient and economical ways of obtaining information, especially while working with many groups of students. Quite interesting form of advanced disciplines knowledge obtaining for foreign students are using of retrospective studying programs, scientific video films, electronic atlases with sound accompaniment and demonstration of models of various normal physiological processes in human organism and structures of different tissues. This contributes to better understanding, memorizing material, clarifying embryological developmental processes and normal histological principles[1].

The whole discipline of “Cytology, general histology and embryology” at the department is divided into two modules: module 1 “Cytology, general histology and embryology” and module 2 – “Special histology and embryology”. First module is subdivided into two content modules: content module 1 “Cytology

and medical embryology” and content module 2 “General and comparative embryology”. While studying, foreign students can easily find all materials for preparation (methodological papers, atlases and books) as well as lectures on the web-site for distant learning “Moodle” on English and Ukrainian languages. Web-site provides an access to all necessary materials in any convenient time and is routinely updated by tutors.

During classes of content module №1 students are introduced first of all to the most important basic skills of histology – preparation of histological specimens and various modern methods of morphological investigations. After, foreign students have four practical classes on general cytology topics. These classes include discussion of cell structure and functions, plasmalemma organization; general and specialized organelles, inclusions; nucleus of the cell, cell division, aging and death of cells; meiosis and sex cells. Content module 1 also includes classes on medical embryology: implantation, gastrulation, differentiation of the germ layers and extraembryonic organs. During classes, except open oral discussion of the topic, foreign students work with microscopes and study histological specimens specifically for each certain topic, complete tasks in their histological protocols (label histological diagrams, draw specimens which were seen in the microscope) and work with electronic microphotographs. Each class includes interdisciplinary interrelation with other fundamental theoretical disciplines: anatomy, physiology and biochemistry. Moreover, tutors give clinical guidelines to bind theoretical foundations as an essential part for understanding pathological pathways of various diseases development and their importance for clinical thinking. After each chapter (for example, after classes on “Cytology” topic) students undergo computer on-line testing at the department for an obvious comprehensive examination of their obtained knowledge on a specific part of the discipline.

The class of content module includes 4 steps: MCQs on computers, description of two histological specimens, description of three electronic microphotographs and oral answer on two theoretical questions. For the content

module class student receives a mark, which is converted into points, as well as all previous marks for theoretical classes.

Content module №2 includes wider range of topics as students start to deepen into general histology: epithelial tissue, blood, lymph, embryonic and postembryonic haematopoiesis, connective tissue (loose, dense and connective tissue with special properties), skeletal tissue (cartilage and bone), muscle tissue (skeletal and cardiac), nervous tissue.

As a result, module “Cytology, general histology and embryology” which is proceeded by foreign students during their first year’s second semester in BSMU, depicts all current aspects of general histology and cytology and provides with all essential practical skills for future medical practitioners. Assimilation of the academic discipline gives students profound knowledge on basic histological methods of investigation, general organization of cellular level of human organism, including cell division and embryological development; histological organization of epithelial, connective, muscle and nervous tissues; blood and postembryonic hematopoiesis which in summary form the fundament of basic medical theoretical knowledge.

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