

**МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ
СУМСЬКИЙ ДЕРЖАВНИЙ УНІВЕРСИТЕТ
КАФЕДРА ІНОЗЕМНИХ МОВ
ЛІНГВІСТИЧНИЙ НАВЧАЛЬНО-МЕТОДИЧНИЙ
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ЛІНГВІСТИЧНОГО НАВЧАЛЬНО-МЕТОДИЧНОГО
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**“WITH FOREIGN LANGUAGES TO MUTUAL
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INNOVATION TECHNOLOGIES IN MEDICINE: PRESENT SITUATION AND PERSPECTIVES

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Nowadays information technologies (IT) are introduced almost in all spheres of health care system. Due to them, medicine has acquired absolutely new features. A lot of researches are impossible without computers and special software. This process is accompanied by considerable changes in medical theory and practice, which cause changes in preparing of medical staff. IT help a doctor to carry out objective diagnostics, to accumulate and effectively use obtained information on all stages of treatment, and what is the most important for medical science, they are invaluable in scientific cognition.

The aim of the research was to show the connection between IT development and practical medicine, medical science.

Innovation technologies in treatment. In 2015 «Philips» company presented EchoNavigator system on the Congress of European Society of Cardiology. The system uses a revolutionary technology of intervention visualization due to combining rontgenography and echocardiography, which allows combining medical instrument reading with image in real-time mode. The cardiac surgeons obtained more interactive and intuitively understandable method of minimally invasive procedures conducting while treating structural heart diseases. Such revolutionary decision allows treatment of ischemic heart disease using minimal invasive intervention. «Philips» also presented the first angiographic system Allura Clarity with unique technology Clarity IQ. Allura Clarity IQ suggests the highest quality of image in coronarography in the case when radiation dose is reduced by several times. Traditionally, the reduction of radiation dose during intervention rontgenographic procedure worsened the quality of an image and as a result it complicated diagnosing and treatment of a patient.

Such technologies can not only sufficiently increase the effectiveness of diagnosing, but also decrease the risk of

complications because of radiation exposure of patients and medical staff. Thus, IT will soon change cardiac care on all stages of patients' care.

Scientific research in medicine. There appeared a number of new branches in a new millennium, which enable the usage of new IT: nanotechnologies - probe microscopy, tunneling spectroscopy, molecular diagnostic of cells, microorganisms, genetic pathology; visualization and identification of protein molecules, internal cellular processes at chemical and wave impacts; molecular "assembling" of biosensors, biocompatible polymers and tissues, electron-beam and laser effect on cellular structures and molecules of biological tissues. Biomedical research in combination with mathematical and computer modelling of structure, functions, behavior, genesis and pathology of a living organism, its systems, organs, tissues, cells, energy and mass exchange, physical fields, sensed signals, structure and usage of simulation models of organism and systems functioning for computer control of life-supporting equipment and therapy, including biofeedback. Multiple-factor energy deposition for diagnostic and therapeutic purposes on systems, organs, tissues of an organism, including at the cellular and genetic level with the help of electromagnetic, laser, ionizing, thermal, ultrasonic, modulated (in time and space) radiation while monitoring the condition of an organism. Microanalysis of biological fluids and tissues with the help of radionuclide, immunoenzyme, luminescent, interference analytical methods with automation selection and sample preparations and computer processing of obtained information. Creation of bioartificial organs and tissues, including hybrid organs, and providing their biological compatibility, their instrumental, therapeutic, pharmacological support in clinics and at patient's home.

Thus, computer technologies are highly perspective for medical science and can make invaluable contribution to the treatment in future.