SOME OF ASPECTS OF APPLICATION OF DIFFERENTIAL OF EQUATION IN MEDICINE AND PHARMACY

Timirshina K., Shevchenko K., Zhovtonizhko I. M.
National University of Pharmacy, Kharkiv, Ukraine
irina00dom@mail.ru

Introduction. Theory of differential equations is one of the biggest topics of modern mathematics. It has many links with different Sciences, particularly in medicine and pharmacy that today is a very important issue.

Research objective – to conduct theoretical analysis of applications of differential equations in medical and pharmaceutical research.

Materials and methods. To solve this problem there were used theoretical methods of research (studying and analysis of scientific literature to determine the status of the development and theoretical rationale for the study). The theory of differential equations is one of the largest branches (sections) of modern mathematics. She has many ties with the different sciences, especially in medicine and pharmacy.

As it is known, in the performance of their professional duties medical workers and pharmacists often have to produce a different mathematical calculations. From the correctness of the calculations carried out depends on the health and occasionally the life of patients. Very often in the laboratory practice have to meet with cases of preparation of solutions with a certain mass fraction of solute, mixing the two solutions of different concentrations or by diluting the strong solution with water.

That differential equations were used to build the apparatus "artificial kidney", as the hemodialysis process (i.e. blood purification using an artificial kidney) is described by a system of differential equations. In addition, the differential equations are used in particular for determining blood flow velocity, the velocity of the heart walls and valves, determining the viscosity of blood and other hemodynamic parameters; for description of biomedical applications of ultrasound(ultrasound, ultrasonic physiotherapy, ultrasonic cardiography and location); for describing the processes of physiological acoustics, which studies the device and work of soundaccepted and soundproduced bodies of humans and animals; for determining function of changes in amount of microorganisms population depending on time.

Conclusions. Thus, referring to the famous Gauss, who said, "Mathematics is the Queen of Sciences" it can be elained that mathematics as a science has found its reflection in many areas of science, in particular medicine and pharmacy.