

## **APOPTOSIS: PROGRAMMED CELL DEATH AND ITS ROLE IN THE DEVELOPMENT OF DISEASES**

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**Introduction.** Apoptosis is responsible for tissue remodelling during the development and turnover of normal tissue throughout the life span. Apoptosis has a central role in the pathogenesis of human disease when the genes controlling the apoptotic process are suppressed, overexpressed or altered by mutation. Research into apoptosis is proceeding at a fast pace and this has led to the possibility of new therapeutic approaches to some intractable human diseases.

**Aim.** Carry out an analytical review of the role of apoptosis in the development of pathological processes.

**Materials and methods.** Data analysis of literature and Internet sources.

**Results and discussion.** The role of apoptosis in a number of pathological processes is extremely large. Both strengthening and weakening of apoptosis can play a crucial role in the development of many pathological processes. Abnormal increase in apoptosis in the process of fetal development can lead to the effect of “minus tissue”, which ends with fetal death. As a result of an increase in the level of apoptosis of hematopoietic progenitor cells, severe combined immunodeficiencies, aplastic anemia, and pancytopenia occur (an insufficient production of so-called “survival factors”, for example, interleukin 7, which is a cytokine that inhibits apoptosis of stem and other progenitor cells. Increased apoptosis plays a leading role in the development of neurodegenerative processes (Alzheimer's disease, Parkinson's disease and others). Increased apoptosis of T-helper cells in AIDS is the main pathogenetic mechanism of this immunodeficiency. On the other hand, increased apoptosis of cells infected with viruses or damaged by microbial toxins plays a positive role, interrupting the progression of viral and microbial infections. The weakening of apoptosis can also contribute to the development of pathological processes, for example, in case of oncological diseases. Increased production in cells of the immune system of factors that inhibit apoptosis, as well as the formation of extracellular factors that block apoptosis (for example, the appearance of soluble receptors of certain cytokines that can induce apoptosis) can lead to the development of a number of autoimmune processes, up to the onset of systemic autoimmune pathology.

**Conclusions.** Further elucidation of the role of apoptosis in these diseases may lead to new possibilities for treatment.

## **THE STUDY OF HYPOGLYCEMIC ACTIVITY CAPSULES «HLIFASOLIN» BASED ON DIABETES TYPE-2**

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**Introduction.** One of the actual problems of the modern endocrinology is the problem of adequate correction of diabetes and its complications. Autoimmune diabetes according to classification WHO – diabetes type-2 – Latent autoimmune diabetes in adults «LADA». Leading role in the emergence of the name belong to autoimmune type of damage of  $\beta$ -cells of the pancreas. Unlike acute insulin deficiency during diabetes type-1, autoimmune diabetes progresses slowly and determines gradual developing of the insulin deficiency. Despite on the wide arsenal of modern antidiabetic remedies, the problem of real compensation diabetes type-2 is still stayed unsolved, so it is the grounding of the searching and creating of new, effective and at the same time low toxic antidiabetic remedies.

**Aim.** Studying of influence of capsules «Hlifasolin» based on a thick bean extract at the dose of 40 mg/kg to the acute insulin deficiency of rabbits.

**Materials and methods.** Acute insulin deficiency of animals was caused by injection of antiinsulin serum at the dose of 3 ml on the animal. Researches were conducted on the 15 rabbits of species chinchilla mass 2,8 – 3,2 kg. The preparation for comparison was chosen the metformin at the dose of 50 mg/kg.

**Results and discussions.** The signs of the level of the glucose in the blood of the animals during injection of AUS of all experimental groups were raising. After 4 or 6 hours of experiment we observed expressed lowering of the level of the glucose in the blood of the animals, which were given the capsules «Hlifasolin» at the dose of 40 mg/kg to 25,5% and to 41,5 %, and in the group of animals, which were given metformin at the dose of 50 mg/kg to 13,6% and to 20,9% to index of the injection of AUS.

**Conclusion.** So, capsules «Hlifasolin» based on a thick bean extract after 2, 4, 6 and 8 hours of experiment showed expressed hypoglycemic action and dominated to action of preparation of comparison – metformin in 1,7; 1,9; 2,0 and 1,6 times respectively.

During the development of the autoimmune diabetes of rabbits capsules «Hlifasolin» have the action which is similar to insulin – connect autoinsulin bodies and release endogenous insulin. Determined expressed antihyperglycemic effect of the capsules «Hlifasolin» gives the opportunity for using these capsules for treatment of autoimmune diabetes.

## BLOOD DONORS AS A SOCIAL PRACTICE

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**Introduction.** The problem of blood donation and the safety of donor blood and its components is one of the leading problems in the modern health system. For providing the state with blood and its components requires 40-60 donors per 1 thousand of population in accordance with the Directives of the European Parliament and the EU Council. While in Ukraine this indicator is 11.3 donations per 1 thousand of population. In particular, the reduction of donation in Ukraine is 1.6 times (compared with 2012) has led to deterioration in the provision of hospitals with blood components and blood products. The reasons for the reduction of donation should be considered: propaganda termination of donor at the national level, non-fulfillment of state guarantees on privileges, unsatisfied financing of blood services, as well as epidemic situation in some regions of Ukraine deterioration. However, the number of recipients is steadily growing that is connected with the growth of the wounded in the ATO zone. One of the main reasons that lead to a reduction of donation in Ukraine is low awareness of the donation impact. Blood and its components are also used for diagnostic and scientific purposes and for manufacturing of medical products. Therefore, the chosen theme is very relevant.

**Aim.** To establish experimentally possible positive and negative consequences by regular donations. To create a plan of action on possible solutions to the problem of increasing the number of donors in Ukraine by attracting young people (in particular students) to systematic donations and to popularize donations among population of Ukraine.

**Materials and methods.** At the first stage of the study a questionnaire among the students of the NUPh of the age of 18 was conducted and there 150 students were involved. The most important questions were the following: about the attitude to donation (positive, negative, neutral); about becoming a donor (yes or no); about knowing the positive and negative sides of the donations (including systematic).

At the second stage was a selection of volunteers. It was made to 3 groups (6 volunteers) in each: 1 group – volunteers who were in control group; group 2 – students who are permanent donors (staffed donors) and group 3 – students who were donated for the first time. Before beginning of donation in all experimental groups clinical analysis of blood and coagulograms were studied. These researches are mandatory in the examination donors. Then the volunteers gave the blood. In 60 days in all groups a second clinical examination of blood and coagulogram were conducted.

**Results and discussion.** According to the results of the survey it was established that among surveyed students, only 8% (12 students) participated in donation. Among all the surveyed, 64% (96 students) of participants have a positive attitude towards donors, 90.6% (87 students) among them are ready to become