

chronic kidney disease), which develop either as a manifestation of vascular complications of diabetes or as comorbidities. A recently published meta-analysis by Wang et al., which included 1558 patients with COVID-19, showed that these comorbidities significantly increased the risk of severe viral disease: for example, the presence of hypertension increased these risks 2.3-fold, COPD – 6 times, cardiovascular pathology – 2.9 times, cerebrovascular disease – 3.9 times. However, no such relationship was found with liver disease, cancer and renal pathology. Thus, patients with diabetes in combination with the above diseases have a significantly higher risk of severe new coronavirus infection.

**Conclusions.** Thus, the presence of SARS COV-2 virus infection is a risk factor for the development of primary diabetes mellitus and a factor that leads to the complication of an existing disease. At present, the question of correction of antidiabetic therapy in the conditions of COVID-19 remains open, because convincing evidence of the benefits or harms of certain groups of antihyperglycemic drugs in a relatively short period of time has not yet been obtained. According to scientists and diabetologists, the main guidelines for prescribing or discontinuing drugs should be instructions for use of these drugs, information about their side effects, as well as recommendations for the treatment of hyperglycemia in severe infectious diseases and in intensive care units.

## CALCIUM AS A CAUSE OF CELL DAMAGE

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**Introduction.** Calcium ions are increasingly becoming mediators in mechanisms that cause lethal cell damage under various pathological circumstances. On the one hand, calcium ions are mediators of the functional consequences of damage to the plasma membrane. On the other hand, changes in intracellular calcium homeostasis are involved in mechanisms that cause potentially lethal damage to the plasma membrane.

**Aim.** The purpose of this review is to provide an overview of the role of calcium ions in the mechanisms of cell damage.

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

**Results and discussion.** Most mechanisms of cell damage are due to increased concentrations of calcium ions in the cytoplasm. This increase may be based on two mechanisms: excessive intake of calcium ions into the cytoplasm and impaired removal from the cytoplasm. An increased content of intracellular  $\text{Ca}^{2+}$  causes damage to the cell in several ways: the accumulation of  $\text{Ca}^{2+}$  in mitochondria leads to the opening of mitochondrial pores and, as a consequence, a change in mitochondrial permeability and insufficient synthesis of ATP; an increased concentration of  $\text{Ca}^{2+}$  in the cytosol activates several enzymes with potentially destructive effects for the cell: phospholipases (cause damage to membranes), proteases (damage both the membrane and cytoskeletal proteins), endonucleases (responsible for the fragmentation of DNA and chromatin), ATPases (accelerate the depletion of ATP stores ); an increased level of intracellular  $\text{Ca}^{2+}$  induces apoptosis through direct activation of caspases and an increase in mitochondrial permeability. An increase in the concentration of  $\text{Ca}^{2+}$  in the cytoplasm activates glycolysis phosphorylase, which enhances intracellular acidosis.

By activating phospholipases at the site of damage,  $\text{Ca}^{2+}$  increases the content of polyunsaturated fatty acids, which are the substrate of lipid peroxidation, and also reduces the activity of the antioxidant system. An increase in osmotic pressure in a cell with an excessive calcium load can lead to osmotic cell death.  $\text{Ca}^{2+}$ -dependent activation of endonucleases damages nuclear chromatin.

**Conclusions.** Calcium ions are important mediators of cell damage. Violation of the barrier function of cell membranes and an increase in their passive permeability for  $\text{Na}^+$ ,  $\text{K}^+$  and  $\text{Ca}^{2+}$  ions is accompanied by a sharp increase in the content of  $\text{Ca}^{2+}$  in the cytoplasm and in the mitochondrial matrix, which is the most important factor in cell damage.

## STIGMA AND DISCRIMINATION AGAINST HIV-INFECTED PEOPLE/AIDS PATIENTS IN UKRAINE

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**Introduction.** Currently, the issues of studying HIV infection in our country have gone beyond purely medical aspects. The HIV epidemic is accompanied by an increase in general anxiety and the spread of justified and unjustified fears among various segments of the population.

**Aim.** The purpose of this review is to provide an overview of the factors contributing to stigma, discrimination and intolerance to HIV-infected people and AIDS patients in Ukraine.

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

**Results and discussion.** An insignificant part of the Ukrainian society is tolerant towards HIV-infected people. The country has formed double standards in society's attitude to the HIV problem. On the one hand, the public is more or less informed about HIV infection, the risk of HIV infection and the main routes of its transmission. At the same time, a rather insignificant share of the population is willing to communicate personally and regularly stay with HIV-infected people. HIV stigma manifests itself in various forms of sociopsychological discrimination, namely: segregation, misunderstanding and interpersonal discrimination. The main intersectoral barriers to social integration of HIV-infected people are intolerant attitude of society, legal insecurity and disclosure of HIV status. The reason for the intolerant attitude of society towards HIV-infected people lies in the stigmatized perception of HIV-infected people, which is a consequence of such factors: low awareness, fear, false stereotypes and prejudice. All components of stigma are closely related, reinforcing, and contribute to the existence of many barriers to HIV-infected people, including in the areas of health care, education and work. Although Ukrainian legislation guarantees equal access for all citizens to services regardless of status, and also provides some additional rights for HIV-infected people, these people often find themselves in a situation of legal insecurity, since anti-discrimination and protective laws on HIV/AIDS are not yet fully implemented. Today in Ukraine one of the most effective ways of social integration of HIV-infected people is non-disclosure of their own status. HIV infection is seen as a defamatory sign that distinguishes a person from a socially determined norm.

**Conclusions.** Currently, Ukrainian society is somewhat intolerant of people living with HIV. Working to reduce stigma and discrimination is a crucial aspect of responding to the epidemic.