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ASSOCIATION OF BCL-2 (RS17759659), CTLA-4 (RS231775), APO-1 / FAS (RS2234767) GENES POLYMORPHISMS WITH ACTIVITY OF PROLIFERATION AND APOPTOSIS IN THYROID TISSUE OF PATIENTS WITH NODULAR FORMS OF GOITER COMBINED WITH AUTOIMMUNE THYROIDITIS AND THYROID ADENOMA

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Introduction. Multinodular goiter (MNG) is the most common of all the disorders of the thyroid gland. MNG is the result of the genetic heterogeneity of follicular cells and apparent acquisition of new cellular qualities that become inheritable. Nodular goiter is most often detected simply as a mass in the neck, but sometimes the enlarging gland produces pressure symptoms.

However, the sufficient researches based on the use of immunohistochemical and genetic markers for early detection and prevention of nodular goiter with autoimmune thyroiditis (NGAIT) and thyroid adenoma (TA) in population are insufficient. The role of autoimmune reactions in this process has not been studied well and require further basic research assessing the markers of apoptosis regulation (protein p53, *Bcl*-2, *Fas*-system) and proliferation (protein *Ki*-67), as well as their relationship with polymorphism of apoptosis associated genes.

The aim of the work is the analysis of apoptosis and proliferation indices (expression / density of markers Fas / FasL, Bcl-2, p53 and Ki-67 on thyrocytes in the lymphoid infiltration and thyrocytes destruction areas as well as in morphologically unaltered areas of the thyroid tissue (as a control), and counting the number of immunoreactive cells that express the above mentioned markers, which regulate apoptosis and proliferation in the AIT and TA patients, using immunohistochemical method, depending on genes polymorphism of *BCL-2* (*rs*17759659), *CTLA-4* (*rs*231775) and *APO-1/Fas* (*rs*2234767).

Material and methods. Our work presents the results of the comparative analysis of apoptosis and proliferative activity in the thyroid gland (TG) tissue in patients with nodular goiter on the autoimmune thyroiditis (NGAIT) and thyroid adenoma (TA) background compared with the morphologically unaltered tissue. The expression / density markers - Fas/ FasL, Bcl-2, p53 and Ki-67 on the thyrocytes in the lymphoid infiltration and destruction areas, as well as in morphologically unaltered areas of thyroid tissue (as a control) were studied. The number of immunoreactive cells, which expressed the above mentioned regulating apoptosis and proliferation markers in NGAIT and TA patients, depending on the genes polymorphism BCL-2 (rs17759659), CTLA-4 (rs231775) and APO-1/Fas (rs2234767) were counted. It was found that in NGAIT and TA patients a few links of programmable thyroid cell killing of Fas-induced apoptosis were activated, and associated with the polymorphic cite of gene BCL-2 (rs17759659) ($F=25.33$; $p<0.001$) and almost 6 times weaker with gene CTLA-4 (rs231775) (F=of 4.23; $p=0.017$), through enhanced expression of Fas and Fas L on the cells surface in lymphoid infiltration and destruction areas (stronger in GG genotype carriers of BCL-2 gene – by 18.54%, 36,18%, respectively; $p<0.05$).

Results. Thus, in AIT and TA patients several links of a programmed thyrocyte killing are activated: the Fas-induced apoptosis prevails and is the most associated with the polymorphic cite of the *BCL-2* (*rs*17759659) gene ($F=25.33$; $p<0.001$) and about 6 times less with the polymorphic cite of the *CTLA*-4 (*rs*231775) gene ($F=4.23$, $p=0.017$), due to the pronounced expression of *Fas* i *Fas L* on the cellular surface in the thyrocytes lymphoid infiltration and destruction areas (more pronounced in the *GG*-genotype carriers of the *BCL*-2 gene – by 18,54% ($p_{AA}=0.043$) and 36.18% ($p_{AG}=0.018$), respectively), which indicates additionally the initiation of possible apoptosis external way through the caspase's mechanism (effector caspase 8).

An increased Bcl-2 expression in the thyroid lymphocytes of AIT and TA patients is associated exclusively with the polymorphic cite of the BCL-2 (rs17759659) gene according to the results of univariate analysis of variance ($F=7.25$, $p<0.001$), without a clear dependence on certain polymorphic variants. The changes in the p53 protein expression were unreliable, indicating a slight control of apoptosis (despite a compensatory p53 density increase inside the thyrocyte, which,

although connected with the promoter regions of CTLA-4 (F=18.18, p<0.001) and APO-1 / Fas (F=10.62, p=0.001) genes, but does not affect significantly the p53 protein expression). This may cause possible extension of the cell survival time and insufficient removal potentially oncogenic cells from the common cells pool, and supposedly can contribute to carcinogenesis.

Conclusions. The practical significance of the results obtained consists in the possibility to determine an individual approach to the treatment of nodular endemic goiter patients against the background of autoimmune thyroiditis.

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A NEW ASSESSING METHOD OF VITALITY OF INTESTINES

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Introduction. One of the reasons for the failure of sutures is their application to the walls of organs with impaired viability. The determination of viability is based mainly on visual assessment. The search for objective methods of evaluating viability is relevant.

The aim of the study. To assess the effectiveness of a new way of assessing viability.

Materials and methods. 10 white non-linear rats. Violations of the gastrointestinal tract were modeled by ligation of loops of the small (SmlI) and large (LrgI) intestines. After 6 hours, a laparotomy was performed, the width of the scattering zone (WSZ) of laser beams with wavelengths of $\lambda = 0.63$ and 0.5 μm was measured by the intestinal wall. The data were compared with the results of histological studies.

Results. In the control, the WSZ of different sections of the intestines did not differ significantly. The ratio of WSZ indicators of rays with $\lambda=0.63$ to $\lambda=0.5$ was 1.01±0.08 for SmlI, 1.05±0.07 for LrgI. After 6 hours, signs of necrosis were found in the pinched areas of the intestines, functional changes in the adducts, and no changes in the abductors. The ratio of the indicators of WSZ on SmlI was, respectively, 0.64±0.03, 0.79±0.05, 0.94±0.06, on LrgI, respectively, 0.62±0.02, 0.82± 0.03, 0.97±0.06. The parameters of the ratio were statistically significantly different between the indicators of the control, adductor and pinched areas. There were no such differences between the indicators of the control and reference sites. At the same time, the indicators within the abductor areas were statistically significantly different from those within the abductor and pinched areas. Therefore, the use of this indicator can become the basis of an objective method to determine the viability of the intestines.

Conclusions. The proposed method can be used as a reliable and objective auxiliary factor to assess the viability of intestines.

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TREATMENT OF AMETROPIAS IN CHILDREN OF EARLY AGE BY MEANS OF CONTACT LENSES

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Introduction. With the view to prevention of low vision and blindness there is the use of pediatric contact lenses for the correction of ametropia in small children. Until recently, there were no such lenses in Ukraine, and commonly used lenses are not suitable for children's eyes due to the inconsistency of the parameters. That is why, invalids since childhood make up 25% in the general structure of primary disabilities in vision in Ukraine.

The aim. The purpose of our study was to determine the safety of using lenses for the prevention of low vision and blindness and to implement soft contact lenses that would be suitable for young children.

Material and methods. 52 children aged 6 months to 4 years with the following diagnoses: congenital myopia, myopia of high extend, anisometropia, aphakia after congenital cataract extraction took part in the study. After carrying out the main research methods: keratorefractometry, skiascopy, observational ophthalmoscopy, ophthalmometry, determination of APA, contact lenses