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на тривалий відведення сечі, або, іншими словами, безтрубчатого дренажу сечі (безтрубчата відведення сечі у хірургічному лікуванні ускладнень нервово-м'язової дисфункції мочевого міхура, або, іншими словами, безтрубчата відведення сечі), про що ми повідомляли раніше [2, 3].

Висновки
Отже, порушення функції товстого кишечника повинно обов'язково супроводжуватися визначеним функції сечового міхура. При підтвердженні порушення накопичувально-евакуаторної функції сечового міхура, курс лікування повинен бути скерований на ефективну дренажу сечі, яка, у окремих випадках, може полагатись у хірургічних методах відведения сечі (безтрубчати методи) та комплексній рено-протекторній терапії при ознаках порушення функції нирок.

Література

Abstract. The article presents results of the comparative analysis of peroxidation process activity of caspase-3 and caspase-8 in patients with thyroid adenoma (TA) and nodular goiter with autoimmune thyroiditis (NGAIT). Studying peroxidation processes in the tissue of the thyroid gland abnormal tissue was detected to be characterized by increase in of protein oxidative modification (POM) indices at the same time, the antioxidant enzymes activity (AEA) was significantly reduced and was more likely in patients with NGAIT. Significant increase in activity of both caspase 3 and 8 was shown in patients with NGAIT compared to macroscopically unchanged tissue and thyroid adenoma.

Keywords: nodular goiter with autoimmune thyroiditis; thyroid adenoma; apoptosis; peroxidation; caspase 3; caspase 8.

Problem statement and analysis of the recent research
Cells are exposed to many damaging factors of endogenous and exogenous nature in the process of their vital activity. Various toxic influences or metabolic disorders undoubtedly lead to the development of oxidative stress, and in this case the future of...
manifesting hypothyroidism, hypertension and cardio-vascular diseases, as well as with severe somatic pathology and after the onset of menopause.

The patients of groups I and II were comparable in age (34.2 ± 10.33 and 38.0 ± 10.62 years respectively, p = 0.12), anthropometric data (body mass index - BMI under 23.5 ± 2.71 and 24.3 ± 4.88 kg/m2, p=0.43) and the levels of free T3 (4.4 ± 0.91 and 4.4 ± 0.93 ng/L, p=0.93) but differed in terms of free T4 (16.6 ± 2.02 and 12.9±3.42 mmol/L, p <0.001), TSH (1.9 ± 0.76 and 4.93 ± 51 mU/L, p=0.0001) and AT-TPO (11.9 ± 13.92 and 255.7 ± 340.58 mU/L, p=0.0009).

The study of peroxidation processes in the thyroid tissue established that there was a significant increase in OMP parameters in the modified tissue at the same time, the activity of antioxidant enzymes (AOE) was significantly reduced, established that there was a significant increase in OMP parameters in the modified tissue at the same time, the activity of antioxidant enzymes (AOE) was significantly reduced, especially in patients with NGAIT (Fig. 1).

For instance, the activity of GP in patients of group I decreased by almost 15% compared to the paranodular tissue and by 18% in patients of group II. The study of peroxidation processes in the thyroid tissue thus established that there was a significant increase in OMP parameters in the modified tissue at the same time, the activity of antioxidant enzymes (AOE) was significantly reduced, especially in patients with NGAIT (Fig. 1).

The study did not involve the patients with hyperthyroidism, those presenting signs of NGAIT was found to be twice higher than in the unchanged thyroid tissue (Fig. 2) indicating the activation of caspase-dependent way of apoptosis under these conditions. In this case, the activity of caspase-8 increased significantly compared to both that of intact thyroid tissue and to patients of group I.

Such imbalance between the activity of peroxidation processes and antioxidant defense systems created the conditions for damaging action of peroxidation processes on the thyroid structures and for ROS impact on pro- and antiapoptotic targets and mechanisms directly or indirectly through the intracellular redox-dependent signal-conveying systems. We consider these structures to be the elements of the thyrocytes, namely cell membrane, intracellular structures, which cause launching of the cell death, namely, to DNA degradation and cell death [15,16].

Materials and methods

75 women complaining of discomfort in the neck were examined during 2013-2015. We evaluated the hormonal status (with thyroid stimulating hormone (TSH), free T4 thyroxin, free triiodothyronine T3) levels of antibodies to thyroglobulin (AB-TG) and to thyroid peroxidase (AB-TPO), the volume and structure of the thyroid gland (TG) according to ultrasound examination.

25 women (group I) were diagnosed with thyroid adenoma after the surgery according to the ultrasound, fine-needle aspiration biopsy (FNAB) and histological findings. We identified this group due to the fact that this pathology is one of the most common forms of nodular goiter.

50 women were diagnosed with NGAIT (group II). The indications for surgery of this group were enlargement of the thyroid gland and with symptoms of compression and narrowing of the trachea and esophagus; some nodes compressed organs of the neck; progressive growth of goiter, despite ongoing conservative therapy for 1.5 years; suspected malignant degeneration, based on FNAB findings.

The study did not involve the patients with hyperthyroidism, those with symptoms of compression and n
apoptotic signal, the indication of which is likely activation of both initiator and effectors caspases.

Additionally, several molecular paths interacting with each other can be activated in the cell. The findings of different sources confirm the role of antia apoptotic protein Bcl-2 under the condition of NGAIT development and this protein is among the main factors in the regulation of apoptotic function of mitochondria [10-13].

Oxidative stress leads to the formation of cell membranes of oxidated lipids which are also apoptotic factors. Caspase oxidative modification (including caspases-3), which are sensitive to cells redox status, depending on the type and location of such changes may cause their activation.

Considering this, as well as the findings obtained while performing the work we can assume that basic mechanisms of apoptosis are triggered in patients with NGAIT due to excessive activation of peroxidation aimed at attracting external receptor mechanism of initiation and increased activity of caspase-3, and can also occur as a result of caspase-8, the indicative of which is probable high increase in the activity of this index both as compared to that in unchanged tissue in the thyroid gland and in patients with thyroid adenoma.

The research of caspase signaling pathways in apoptosis of thyroid cells has recently started and requires further study. Discovery of physiological regulators of apoptosis in caspase activity shows the inexhaustible possibilities of cells to maintain homeostasis and the natural end of life cycle. Tracking ways causing cell death may contribute to the development of new approaches to the prevention and treatment of autoimmune thyroid disease.

**Conclusions**

1. Processes of protein peroxidation are activated and the systems of antioxidant defense become weaker in the thyroid tissue of patients with autoimmune thyroiditis (NGAIT).

2. Induction of thyrocytes apoptosis in patients with NGAIT on external mechanism is associated with increased activity of caspase-8, which significantly predominates in patients with thyroid adenoma and in practically healthy people by 56.18% and 49.46%, with an implementation through effectors caspase-3 the activity of which grew almost twice.

**Prospects for further research**

Detection of pathogenic factors and mechanisms of apoptosis deregulation in case of NGAIT will allow determining the additional causes of their onset and formulate pathogenetically grounded methods of immunopathological changes correction.

**References**


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