



#### СЕКЦІЯ 14

### КЛІНІЧНА ОНКОЛОГІЯ, ПРОМЕНЕВА ДІАГНОСТИКА ТА ПРОМЕНЕВА ТЕРАПІЯ

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#### **BODY TEMPERATURE FLOW AS AN EARLY DETECTION METHOD OF BREAST CANCER**

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Breast cancer continues to be the most widespread cancer among women. The most effective way to improve the results of breast cancer treatment is screening methods improvement. This is indicative of the need to create and implement new non-invasive technologies that would complement traditional early detection methods. A flow indicator of biological processes in the human body is the heat flux of internal organs, the magnitude of which varies with different pathological conditions. Determination of the temperature flow of the mammary gland will improve the principles of early diagnosis of its diseases, and oncologic processes in particular.

The aim of the study was to analyze experimentally and clinically the density of the temperature flux of the mammary gland affected by malignant neoplasms.

The experiment was performed on 48 rats. The main group consisted of 32 animals, which were grafted with the Guerin tumor into perineum tissues in project localization of mammary glands, according to the method we suggested (patent №109812 dated 12.09.2016). The comparison group included 16 intact animals, which have a heat flow sensor in the projection of the mammary gland. Thermal measurement of the flow density of the mammary gland was carried out from the 8th to the 16th days after the tumor injection.

Clinical trials were performed on 125 women, who were divided into two groups. The main group included 37 women with breast cancer, in I-II A stage of the disease. A comparison group included 88 practically healthy women. The multichannel device ALTEK-10008 with the software "Thermologger 9004 TS-M" carried out measurement of the heat flow in the mammary gland.

The results of the experimental study indicate that the heat flux in the mammary glands with tumor is lower than that of the intact ones and decreases with the growth of the tumor. The results of the clinical trial indicate that there is no probable difference in the density of the heat flux between all quadrants of the right and left pathologically intact glands, during all stages of the menstrual period. 2°C increase in the surrounding temperature leads to a probable decrease in the density of the heat flow of the mammary gland in 1.16 times ( $p < 0.01$ ). The presence of malignant tumors of the mammary gland leads to decrease in the density of the heat flux in the projection of the tumor in 1.21 times ( $p < 0.01$ ).

Consequently, the density of the heat flow of the mammary gland completely reflects the morphofunctional state of its tissues, which can be used for the early detection of cancer in this localization.

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#### **PECULIARITIES OF THE GRANULATION TISSUE MORPHOLOGY ROUND THE NET ALLOGRAFT AT PREOPERATIVE IRRADIATION OF THE ABDOMINAL CAVITY**

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Patients with oncological diseases of the abdominal cavity organs constitute the largest risk group of the post-operative eventration origin. Application of integrated treatment, which includes carrying out pre-operative radiation therapy, significantly slows down reparative processes in the zone of irradiation, increasing the risk of the post-operative eventration origin as well. Study of the influence of pre-operative radiation therapy on the granulation tissue morphology round the net allograft will enable to determine more optimally the expediency and safety of the net allograft use, when strengthening the anterior abdominal wall in patients with oncological diseases of the abdominal cavity organs.

The objective of the research in this connection was to study in experiment the peculiarities of the granulation tissue morphology round the net allograft elements of the muscular aponeurotic layer while conducting pre-operative distant gamma-therapy on the abdominal cavity organs.

The experiment was carried out on 168 laboratory rats, which were implanted with Prolene net allograft into the tissues of the muscular-aponeurotic layer of the anterior abdominal wall. All the experimental animals were divided into two groups – the group of comparison (72 rats) and the main one (96 rats). The animals of the main group were exposed to radiation of the area of the anterior abdominal wall with gamma therapeutic apparatus АІ'АІ – ПІ У two weeks before implantation of the net allograft. Sampling of the biological material was made on the 1<sup>st</sup>, 3<sup>rd</sup>, 5<sup>th</sup> and 7<sup>th</sup> day after performing surgical procedure by means of cutting the muscular-aponeurotic layer of the anterior abdominal wall together with the net allograft. For the optic histological investigation tissue samples of the muscular-aponeurotic layer of the anterior abdominal wall were fixed in 10% neutral formalin. Paraffin sections were stained with hematoxylin and eosin. Staining technique of histological sections with water blue – chromotrope 2B was used to identify collagenous fibers and fibrin. Optic density of the stained collagen fibers with water blue chromotrope, specific volume of the collagen fibers per square unit of the granulation tissue, specific volume of the blood vessels in the granulation tissue were determined as well.