Unguryan V.P.

OPTICAL PARAMETERS OF LASER POLARIMETRY OF THE MAMMARY GLAND TISSUE AFFLICTED BY MALIGNANT FORMATION

Department of Oncology and Radiology
Higher State Educational Institution of Ukraine
"Bukovinian State Medical University"

Despite the significant advances in modern medicine, breast cancer incidence continues to increase not only in Ukraine but also in most developed countries, making this problem extremely urgent.

The effectiveness of breast cancer treatment is directly related to the early diagnosis of the disease, prognosis of tumor progression, the possibility of distant metastases and the like.

Recently, methods of laser spectrophotopolarimetry has acquired a widespread use in medicine. They are based on the use of a wide range of phenomena associated with various effects of the interaction of light with biological tissues, which makes it possible to detect changes in organ tissues at the molecular level.

The use of these methods in the morphological diagnosis of breast cancer will allow determining the diagnostic value of this method in verifying the diagnosis, as well as to evaluate the prognostic possibility of metastatic spread of the oncological process.

Objective: to investigate the statistical moments of coordinated intensity distributions of microscopic laser images of breast cancer and peritumor tissue depending on the stage of the oncologic process and the molecular subtype of the tumor.

To achieve this goal, 100 breast cancer patients with a primary diagnosis were examined, as well as 18 patients with breast fibroadenoma who were undergoing treatment at Chernivtsi Regional Clinical Oncology Clinic. When performing chest biopsy of the breast to verify the diagnosis, tissue from the breast tumor and peritumoral area was taken from all the patients (a layer of tissues around the tumor 1.0 cm thick). Pathologically unchanged breast tissue is obtained by a trepan-biopsy of the peritumoral area of patients with fibroadenomas breast. Pieces of tissue obtained during the execution of a trepan biopsy of the breast were frozen on a freezer table and sections were made. In distilled water, they were leveled, placed on non-degreased slides and dried. The measurement of the optical density of the laser image intensity distribution of tissues of the human body was carried out at the Department of Optics and Spectroscopy of Y. Fedkovich Chernivtsi National University.

The results of the study show that statistical moments M3, M4 of the radiation intensity distribution of laser images of breast tissues affected by a cancerous tumor are significantly different from the indicators of peritumoral area, fibroadenoma, and pathologically unchanged breast tissue. Between the stages of oncological process and the molecular subtypes of breast cancer, there is no significant difference in the statistical moments M3, M4 of the radiation intensity of laser images of cancerous tissues and peritumoral area.

The statistical moments M3, M4 of the radiation intensity distribution of the peritumoral area are significantly different from those of fibroadenoma and pathologically unchanged breast tissue.

Гушул І.Я.

ПЕРСОНІФІКОВАНЕ ЛІКУВАННЯ ХВОРИХ НА РАК

Кафедра онкології та радіології
Вищий державний навчальний заклад України
«Буковинський державний медичний університет»

Щороку у світі виявляється близько 12 млн осіб, які вперше захворіли на рак. Близько 7 млн помирають від цієї хвороби. За оцінками експертів, у 2030 році на рак захворіє близько 20 мільйонів людей. Ефективність схем хіміотерапії, коливається від 25% до 60%, що не забезпечує достатньої ефективності лікування та зумовлює високий відсоток смертності. Ці показники можна було б покращити, а разом, і врятувати багато життів персоніфіковуючи лікування для кожного конкретного пацієнта.