

Institute of Strength Physics and Materials Science
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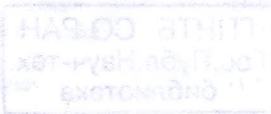
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**Physics of cancer:
interdisciplinary problems and clinical applica-
tions**

May 23-26, 2017
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Book of Abstracts

**Физика рака: трансдисциплинарные проблемы и
клиническое применение: сб. тез. докл. междунар.
конф. (г. Томск, 23-26 мая 2017 г.) / Институт физики
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ИФПМ СО РАН, 2017. - 109 с.**



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P562

colloid ^{99m}Tc -Alotek for visualization sentinel lymph nodes (SLN), colloid was injected peritumoral in four points to 80 MBq one day prior to the planned operation.

Results: The sensitivity of SPECT using both ^{99m}Tc -MIBI and ^{199}Tl for breast cancer detection was shown to be rather high, being 98,5% and 98%, respectively. It should be noted that the sensitivity of SPECT in detection of small tumors (less than 1 cm in diameter) and multicentric tumors was not high irrespective of the radioisotope used (60% and 65% with ^{99m}Tc -MIBI and 65% and 59% with ^{199}Tl , respectively). The difference in sensitivity was found between ^{99m}Tc -MIBI and ^{199}Tl for the detection of regional lymph node metastasis (91% vs 70%).

SLN were detected in 31 patients. The most commonly SLN were defined by us in the axillary region of 96.7%. In 22 (70.9%) patients, there was no metastasis SLN. The sensitivity of the method was 91.2%, specificity of 100%.

Conclusion: The specificity of SPECT with ^{199}Tl was higher than that with ^{99m}Tc -MIBI. The data obtained show that SPECT with ^{199}Tl can be recommended for its use as an additional breast cancer detection method in cases when other imaging techniques and histological findings are not accurate enough. The clinical study of ^{99m}Tc -Alotek, a new radiopharmaceutical agent, have shown that the studied colloid has high uptake level in SLN and can be successfully used for visualization of SLN in patients with breast cancer.



ACCELERATOR-BASED NEUTRON CAPTURE THERAPY: PRE-CLINICAL EVALUATION AND PROSPECTIVE CLINICAL USE

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Boron-neutron capture therapy (BNCT) is a unique adjuvant therapy for various malignant tumors, including glioblastoma which is the most aggressive glioma. The main advantage of BNCT is cancer cell selectivity with minimal effect on healthy tissues. Previous experiments at nuclear reactors showed

