

Sentinel Lymph Node Biopsy after Neoadjuvant Treatment for Breast Cancer.

The Validation Protocol

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Abstract

Introduction: The identification and biopsy of the sentinel lymph node (SLNB) in breast cancer patients requiring neoadjuvant cytostatic treatment (NAC), with clinically negative lymph nodes following treatment, may be an effective method of de-escalation of axillary surgery.

Materials and methods: This prospective study includes 47 cases of breast cancer stage IIB-IIIA, with NAC treatment and complete axillary clinical and imaging response, surgeries performed at Prof. Dr. Alexandru Trestioreanu Oncological Institute in Bucharest (IOB) by the same team. In all the cases, SLNB was employed using the radioactive tracer method. The SLNB technique with Tc99 radioactive tracer involves: - injection of the radioactive tracer and preoperative lymphoscintigraphy, - intraoperative identification of the sentinel node/ lymph nodes and their excisional biopsy, - intraoperative histopathological examination, in paraffin blocks, and immunohistochemistry of the lymph node (SLN).

Results: SLN was identified in 46 of 47 cases. In 19 cases SLN was positive, and in 2 cases we recorded false negative results. All patients underwent standard axillary lymphadenectomy (back-up lymphadenectomy). The correlation between the intraoperative and paraffin histopathological examination of SLN with the paraffin and immunohistochemical examination of the rest of the axillary nodes (N-SLN) led to the following results: sensitivity 91% (19/ 21), specificity 100% (25/ 25), positive predictive value 100% (19/ 19), negative predictive value 93% (25/ 27). The accuracy of the method was 96% (44/ 46). SLN invasion was more common in patients with residual tumor > 2 cm (vs T ≤2 cm) (p = 0.01), positive N-SLN (vs non-invaded N-SLN) (p = 0.003). N-SLNs were more frequently invaded when there was peritumoral lymphocyte invasion (vs. no invasion) (p = 0.01).

Conclusion: SLNB in patients with breast cancer who require NAC, with clinically and imaging negative lymph nodes following treatment, has a high rate of specificity and an acceptable number of false negative results. Node invasion is more common in patients with residual tumors > 2 cm, with lymphovascular invasion or with multicenter/ multifocal disease.

Key words: breast cancer, sentinel lymph node, neoadjuvant treatment