INAHTA Briefs

Issue 2010/048

Title **Sentinel Lymph Node Biopsy in Breast Cancer Treatment: Technical Aspects**

Agency **AETMIS, Agence d'évaluation des technologies et des modes d'intervention en santé**
2021 avenue Union, suite 10.083, Montréal, Québec H3A 2S9, Canada;
Tel: +1 514 873 2563, Fax: +1 514 873 1369; aetmis@aetmis.gouv.qc.ca,
www.aetmis.gouv.qc.ca

Reference ETMIS 2009, 5(10). Printed French edition ISBN 978-2-550-57736-2, English summary (PDF) ISBN 978-2-550-567735-5. www.aetmis.gouv.qc.ca/site/en_publications2009.phtml

Aim

To systematically review the validity of current evidence on the technical aspects of sentinel node biopsy in breast cancer treatment.

Conclusions and results

Sentinel node biopsy is a proven technique in terms of feasibility and diagnostic accuracy. In experienced hands, it generally yields high identification rates (around 95%) and has a low risk of false negatives (around 5%). However, certain technical aspects influence these performance measures: 1) The use of radioisotope alone is better than the use of blue dye alone. Combining the two tracers achieves the best identification rates and the lowest risk of false-negative findings; 2) The different types of dyes or radioactive colloids do not substantially modify the results of sentinel node biopsy; 3) Superficial injection of the tracer offers better success rates than intraparenchymal injection in identifying sentinel nodes; 4) The time from radioisotope injection to surgery is not meaningful if the dose is increased for injection administered the day before the procedure; 5) Preoperative lymphoscintigraphy appears not to improve either sentinel node identification rates or the sensitivity of sentinel node biopsy in detecting axillary lymphatic invasion; 6) Immunohistochemistry combined with standard histological examination achieves highly variable results and does not seem to reduce the risk of false negatives in sentinel node biopsy; 7) Despite low sensitivity for detecting micrometastases, intraoperative examination of sentinel nodes by imprint cytology or frozen section offers the possibility of immediate axillary dissection in the event of positive intraoperative findings; 8) Surgeon experience affects sentinel node identification rates, but has a lesser impact on the risk of false negatives. The learning curve seems short: high performance levels may be achieved with as few as 20 biopsies under the supervision of a qualified surgeon, where sentinel node identification rates may subsequently serve as a performance indicator.

Methods

A systematic literature review focused on the feasibility and diagnostic accuracy of sentinel node biopsy, with two main study parameters: sentinel node identification rate and risk of false negatives (1 - negative predictive value). Methods also included analysis of the false-negative risk (with study patients who underwent axillary dissection) and assessment of the following technical aspects of sentinel lymph node biopsy: type of tracer, type of radioactive colloid, type of dye, tracer injection site, time from injection to surgery, use of preoperative lymphoscintigraphy or not, histological examination method, and intraoperative examination. The role of the learning curve for this technique was also evaluated.

Further research/reviews required

The prognostic value of micrometastases detected solely through immunohistochemistry should be investigated.

Written by Cathy Gosselin, AETMIS, Canada

ISSN 1654-501X