P-ISSN: 2548-5962
E-ISSN: 2548-981X
https://ojs.unud.ac.id/index.php/jbn

PROCEEDING

079. The Diagnostic Duel: Single Immunohistochemistry vs. in Combination with Hematoxylin Eosin in Sentinel Lymph Node Biopsy for Breast Cancer—Insights from a Meta-Analysis

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ABSTRACT

Background: The timing of sentinel lymph node biopsy (SLNB) has gained significance with the increased use of neoadjuvant chemotherapy (NAC) in breast cancer. Hematoxylin and eosin (H&E) is the standard histological stain, yet the optimal histopathological protocol for SLNB remains unclear. The role of immunohistochemistry (IHC) in enhancing diagnostic accuracy is still debated. This study evaluates the false-negative rate (FNR) of SLNB in clinically node-negative breast cancer patients after NAC, comparing IHC alone versus IHC combined with H&E staining through a systematic review and meta-analysis. **Methods**: We conducted a comprehensive search of PubMed, Embase, and the Cochrane Library from January 2002 to August 2024, focusing on patients undergoing SLNB after NAC followed by axillary lymph node dissection (ALND). Odds ratios (ORs) and 95% confidence intervals (CIs) were calculated using a random-effects model via Review Manager Software version 5.3. **Results:** A total of 1,456 patients across 16 studies were analyzed. The FNRs varied from 0% to 33%. The estimated FNR was 1.55 (95% CI: 0.71-3.38) for studies using IHC, while the pooled FNR for H&E alone was 11% (95% CI: 4%-18%) compared to 4% (95% CI: 1%-7%) for H&E with IHC. No significant difference in FNR was observed between the two staining methods (P = 0.28). **Conclusion:** IHC combined with H&E is technically feasible and offers comparable accuracy for axillary staging in initially clinically node-negative breast cancer patients post-NAC.

Keywords: false-negative rate, immunohistochemistry, hematoxylin-eosin staining, sentinel lymph node biopsy

DOI: https://doi.org/10.24843/JBN.2024.v08.is02.p079