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The sensitivity and specificity of methylene blue dye as a single agent in sentinel lymph node biopsy for early breast cancer

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Abstract

Introduction: Axillary lymph node dissection (ALND), although associated with significant morbidity, has been the standard procedure for axillary staging for breast cancer in many hospitals in Malaysia. The limited resources for radioisotope tracer and nuclear medicine service, coupled with insufficient number of trained surgeons, have been the major obstacles to perform sentinel lymph node biopsy (SLNB). **Materials and Methods:** This study looks into the application of 1% methylene blue dye (MBD) as a single agent for SLNB and observes the outcome and any associated complication. Thirty-four patients with early breast cancer were enrolled. Two millilitres (ml) of 1% MBD was diluted with saline to a total volume of 5 ml. After induction of general anaesthesia, 3 ml of the diluted 1% MBD is injected subdermally at the upper outer quadrant of the breast followed by 5 minutes of massage. Sentinel nodes are identified as blue nodes or lymph nodes with a blue-stained lymphatic channel and were surgically removed. All patients then underwent tumour excision, either mastectomy or breast-conserving surgery, and ALND. The sentinel nodes were categorized to positive or negative for metastases and were compared with axillary lymph nodes for diagnostic value assessment. **Results:** Identification rate of sentinel nodes was 91.2%. The mean number of removed sentinel nodes was 2 (SD=1) and the mean number of axillary nodes was 16 (SD=6). Sentinel node metastasis was found in 13 (41.9%) cases. There were two false-negative cases, resulting in a sensitivity of 86.7% (95%CI: 62.1-96.3). The negative predictive value of sentinel nodes to predict axillary metastasis was 88.9% (95%CI: 67.2-96.9). There were no complications observed. **Conclusion:** Although inferior to the standard dual-tracer technique, the usage of MBD as a single agent in SLNB for early breast cancer still offers favourable accuracy and identification rate. With continuous training and improved surgeons experience, performing SLNB with blue dye alone is feasible in order to reduce the risks and morbidities associated with ALND. © 2022, Malaysian Medical Association. All rights reserved.

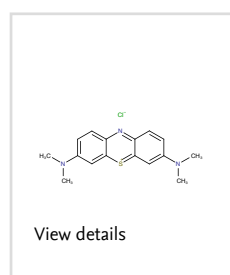
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