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From controversy to consensus: the sentinel node procedure as the standard of care in melanoma

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Fourteen years have passed since the introduction of the sentinel node procedure. A great number of studies have provided information that can help make the decision whether the procedure should now routinely be performed in patients with melanoma. However, the available evidence is not so clear that a worldwide consensus has been reached. In countries like Belgium, the United Kingdom and the Netherlands the issue is still subject of considerable debate. The purpose of this paper is to examine the pieces of evidence that enable one to decide whether or not to adopt lymphatic mapping as the standard of care.

There is now consensus that lymphoscintigraphy is an essential element of the procedure. The intra-operative techniques using the gamma ray detection probe and the blue dye need to be combined in order to obtain the best possible retrieval rate. With this approach, a node is identified in virtually 100 % of the patients.

Sentinel lymph node biopsy is most often performed when the Breslow thickness of the lesion exceeds 1mm and some 20 % of these patients are found to have metastases.

Most published papers look favorable upon the reliability of lymphatic mapping. However, these publications should be interpreted with restraint for two reasons. Firstly, melanoma surgeons have the tendency not to use the standard definition of sensitivity but to calculate the false negative rate over the entire group of patients and not over the patients with an involved lymph node field. This approach decreases the false-negative rate by a factor five. Secondly, false negative procedures will have to declare themselves during follow up of the patients, because prophylactic lymph node dissection is not performed anymore. It will take a fair number of years before the true recurrence rate can be determined and few authors possess the patience to wait that long before submitting their manuscripts.

When the true sensitivity is considered, recent studies from reputable institutions show a disturbing lack of ability for sentinel node biopsy to identify tumor-positive lymph node basins. A review of the literature reveals sensitivities up to 32 % with a follow up that is just fourteen months in one study.[1] Twelve specialized melanoma centers have participated in a WHO study of 1165 patients in whom the false negative rate was 22 % after three years of follow up.[2] Eight months later, this had risen to 25 % . When questioned about this finding, the principle investigator of this study, explained that the majority of the false negative cases were encountered early on in the study when experience was limited and the technique was not yet well established. This seems a reasonable and reassuring explanation.

Postoperative complications after sentinel node biopsy develop in some 9 % of the patients, a higher percentage than was expected.[1] Late complications are seen in 18 % with (minor) edema of the leg being the most frequent one.[1]

The five-year overall survival rate is 90 % in patients with tumor-negative sentinel node and 60-65 % when the node is tumor-positive. The tumor-status of the sentinel node is thus an important prognostic factor.[1]

Some investigators have found a high incidence of in-transit metastases in sentinel node-positive patients.[1] This has led to debate over the safety of this lymphatic mapping. The perceived increased risk of in-transit metastases is not substantiated in a recent randomized study comparing wide local excision of the primary melanoma with wide local excision plus lymphatic mapping.[3]

An interim analysis of this same study shows no difference in survival between the two groups, but it does show encouraging results in the subgroups of patients with involved nodes. After a median follow up of 54 months, overall melanoma-specific survival in the patients who developed overt metastases in the wide excision only group is 55 % and in the sentinel node-positive patients this is 71 % ($p<0.01$).[3]

These numbers confirm retrospective data from an American study (51 % and 73 %),[4] and results from a retrospective German study (50 % and 63 %).[5]

Based on the available data, the authors feel that lymphatic mapping with sentinel node biopsy is now justified as a routine procedure. However, one can expect that its role will remain subject of debate until the final results from the relevant studies are disclosed.

References

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