Ten Best Readings on Radioguided Surgery

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The ten best recent articles in the medical literature relating to radioguided surgery are reviewed here.


It had been unclear whether elective lymph node dissection (ELND) offered a survival benefit to melanoma patients with clinically negative nodes. This Intergroup Melanoma Trial found that a subset of patients with primary melanomas between 1.0 and 2.0 mm and/or less than 60 years of age have a documented survival benefit with ELND.


The authors demonstrate that interferon alfa-2b given after surgical resection of a high-risk melanoma provides extended disease-free and overall survival similar to that achieved by adjuvant therapy for breast and colon cancer.


Applied to the data from the Eastern Cooperative Oncology Group's trial 1684 on adjuvant interferon alfa-2b therapy in melanoma, the authors found that the group receiving interferon gained quality-adjusted survival time when compared to the control. The interferon-treated group spent twice as much "time without symptoms" than in toxicity and relapse states.


The projected incremental cost per life gained in the interferon group ranged from $43,200 per Q-TWiST year at seven years to $15,200 per Q-TWiST year over a lifetime. This wide range in cost reflects interferon's significant survival advantage at seven years. These costs are comparable to those of other cancer interventions.


With 38,300 new cases of melanoma diagnosed each year, the lymphatic mapping procedure could potentially save the health care system $172 million per year if general anesthesia is used in the surgical procedure and $350 million per year if local anesthesia is used. In addition, patient morbidity is minimized, nodal staging is complete, and adjuvant therapy can be applied in a selective fashion.


Reverse transcriptase-polymerase-ase chain reaction has been successful in identifying nodal micro-metastases. The discovery of such "submicroscopic" disease can be used to upstage patients from stage II to stage III disease — the subset of patients shown to have a survival benefit with adjuvant interferon alfa-2b therapy.


Using intraoperative blue dye mapping, Giuliano's group succeeded in locating 114 sentinel lymph nodes (95.6%) in 174 procedures, as well as accurately predicting nodal status in 109 (95.6%) of 114 cases. This success rate was an improvement from the 71% success rate documented in the initial report of 170 patients, thus reflecting the learning curve.


The success rate of finding an axillary sentinel lymph node using a combination of vital blue dye and radiocolloid mapping was 92% compared with a 71% success rate using blue dye alone, as reported by Giuliano and colleagues. In 67% of the patients who had metastasized, the sentinel lymph node was the only site of disease. Cote RJ, Houckens DP, Hitchcock CL, et al. Intraoperative detection of occult colon cancer micrometastases using 125I-radiolabelled monoclonal antibody CC49. Cancer. 1996;77:613-620. This study shows that radioimmunoguided surgery (RIGS)-positive tissue removed at laparotomy is likely to contain metastatic disease and result in a more effective resection and staging of colon cancer. Other reports from the same group have suggested a survival advantage when colon cancer surgery employs this technique.


In this case, Tc-99m-sestamibi was used in identifying the parathyroid tumor, but the authors also recommend ultrasonography and MRI as noninvasive alternatives. The increased sensitivity of these noninvasive methods offers a viable alternative to unsuccessful initial studies that result in increased operative time and higher cost for both the patient and the health care system.