PET, PET/CT, and head and neck squamous cell carcinoma: Is it time to review the NCCN guidelines?

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Objectives
Early detection and accurate staging of head and neck squamous cell cancer (HNSCC) is essential for treatment planning and strongly influences prognosis. The purpose of the present review is to discuss the role of PET/CT in the management of HNSCC and highlight the lack of well-defined guidelines for surveillance strategies.

Study Design and Methods
This is a review of the literature on the role of PET and PET/CT in the management of HNSCC. An English literature review was conducted using PubMed using the search terms: PET and head and neck squamous cell cancer. Pertinent articles were selected and reviewed.

HNSCC Surveillance

• Early recurrence in head and neck cancer may be asymptomatic in patients, and up to 61% of recurrences in head and neck cancer may be found by patients after self-referral for specific symptoms
• de Visscher and Manni concluded that recurrent disease found during routine follow-up was associated with a mean survival that was twice as high as those patients’ whose recurrence was found by self-referral
• A Dutch study by Ritoe et al showed a survival benefit for salvage therapy between patients with recurrent laryngeal carcinoma found on routine, as opposed to, non-routine followup

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<th>Study</th>
<th>Sensitivity</th>
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<th>Positive predictive value (PPV)</th>
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Recurrent HNSCC

• Tend to be more biologically aggressive, especially those which do not completely respond to chemo- or radiation therapy
• Early detection of recurrent disease in HNSCC may lead to improved mortality rates
  • Lin and colleagues showed in 191 patients with HNSCC of the oral cavity treated with surgery that there was a 5-year survival benefit in surgical salvage for early stage versus late stage recurrence, 60% versus 38%, respectively.
  • There is also data in the literature to support re-irradiation in the setting of recurrent HNSCC
  • Kao et al. reported that at the University of Chicago, re-irradiation with concomitant chemotherapy may be a curative option for those patients with surgically unresectable recurrent HNSCC with a 5-year survival rate and local control rate of 15% and 20%, respectively.
  • Salama et al. also concluded a combination of surgery, radiation, and chemotherapy may be a curative option for recurrent HNSCC.

Conclusion
Patients presenting with earlier stage tumors have excellent cure rates. In addition, treatment of early recurrence may improve survival, as it may be more amenable to surgical salvage, re-irradiation, and/or chemotherapy. The National Comprehensive Cancer Network (NCCN) guidelines for the treatment of HNSCC do not include the use of PET/CT and/or specify how to radiographically monitor patients after treatment. PET clearly has demonstrated some advantages over conventional imaging with CT and MRI, and PET/CT is even more superior. PET and PET/CT have demonstrated an improved ability to detect tumor recurrence over conventional imaging modalities and probably should be integrated into HNSCC posttreatment surveillance protocols, because there is a survival benefit for salvage therapy in early over late recurrences.