POSTER PRESENTATION



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How accurate is 18F-FDG-PET-CT in determining local cartilaginous/bony involvement by head & neck malignancy?

LI Sonoda^{*}, A Lakhani, S Ghosh-Ray

From International Cancer Imaging Society (ICIS) 14th Annual Teaching Course Heidelberg, Germany. 9-11 October 2014

Aims

18F-FDG-PET-CT plays an important role in the management of head and neck cancers (HNC). In particular, presence/absence of local osseous invasion is an important factor in T-staging and determining treatment options. This study aimed to determine the accuracy of PET-CT in prediction of local osseous invasion by head and neck cancers.

Methods

A 6-year-period retrospective analysis of 771 PET-CT scans of HNC (oral/nasal cavity, pharynx, larynx) was performed. Final diagnosis of osseous involvement was determined by histopathology, clinical and imaging follow-up.

Results

PET-CT scans demonstrated increased abnormal osseous uptake in 63 cases, of which 52 were true osseous invasion, but 11 were false-positive (4 due to osteoradionecrosis, 4 benign dental infection/inflammation, 3 over-staging due to intense FDG-uptake nearby the bone). 708 cases were reported as 'no osseous uptake', of which 704 were truenegative, but 4 were false-negative (2 due to intrinsically low FDG-avid primary disease and bony lesions were not significantly FDG-avid, 2 due to bony necrosis of tumour with no significant FDG-uptake).

Sensitivity, specificity, PPV, NPV and accuracy of PET-CT in detecting local osseous invasion are 93, 98, 83, 99 and 98% respectively.

* Correspondence: luke@sonoda.co.uk

Paul Strickland Scanner Centre, Mount Vernon Hospital, London, UK

Conclusion

18F-FDG-PET-CT plays an important role in detecting local osseous invasion by HNC, with an accuracy of 98%. Important false-positives are due to benign causes such as infection and osteoradionecrosis, and due to intense FDG-uptake nearby the bone. If there is clinical doubt further investigations including MRI and biopsy should be performed.

Published: 9 October 2014

doi:10.1186/1470-7330-14-S1-P1 Cite this article as: Sonoda *et al.*: How accurate is 18F-FDG-PET-CT in determining local cartilaginous/bony involvement by head & neck malignancy? *Cancer Imaging* 2014 14(Suppl 1):P1.

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