
Title: Positron emission tomography (PET) for sarcoma
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PET for sarcoma
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Aim

To assess the safety, effectiveness and cost-effectiveness of PET for sarcoma for: initial grading and guiding biopsy of suspected sarcoma; initial staging of biopsy proven bone or soft tissue sarcoma considered potentially curable on conventional staging (adult-type and tumours); initial staging of biopsy proven bone or soft tissue sarcoma (paediatric-type tumours); evaluation of suspected residual or recurrent sarcoma after definitive treatment; initial staging of patients with newly diagnosed gastrointestinal stromal tumours (GIST) or with recurrent GIST after locoregional therapy; investigation of suspected progression or treatment resistance in patients with gastrointestinal stromal tumours.

Methods

This report updates a previous MSAC review from 2001. A systematic review to May 2009 was undertaken to include more recent studies including evidence from the Australian data collection study (Hicks 2008), initiated following the 2001 MSAC review.

Results and conclusions

Safety: PET and PET/CT are considered safe procedures.

Effectiveness: No direct evidence was found reporting the health outcomes of patients with sarcoma, assessed with and without FDG-PET. Therefore, evidence for accuracy, change in management and the expected benefit of changes in treatment on health outcomes (linked evidence approach) was considered to evaluate the effectiveness of PET.

Sarcoma: Based on 15 published primary studies in patients with sarcoma it was considered that PET is at least equivalent to CT or MRI for the selection of an appropriate site for biopsy and is able to distinguish between benign and malignant bone and soft tissue lesions. For patients with biopsy-proven adult-type tumours, PET can more accurately detect metastases (excluding pulmonary metastases), which leads in a proportion of patients having a change in treatment intent from curative to palliative. For patients with paediatric-type tumours it was considered that PET identifies more accurately bone and lymph node metastases. Lastly for the evaluation of suspected residual or recurrent sarcoma PET was considered to predict the absence of disease when a PET scan is negative and is likely to result in avoidance of biopsy in a proportion of patients when a PET scan is negative. **GIST:** The data on the role of PET in patients with GIST are currently limited and are of fair to poor quality. Changes in management arising from these findings and their resultant impact on health outcomes are uncertain.

Economic considerations: A cost-consequence analysis of the addition of PET to the initial staging of adult-type and paediatric-type sarcomas was undertaken, and an estimate of the main cost implications for patients with suspected residual or recurrent sarcoma was conducted. The paucity of information for patients with GIST precluded a cost-effectiveness or cost-consequence analysis.

In patients with adult-type tumours, there was substantial uncertainty around the data used in the model and depending upon assumptions PET was associated with either incremental costs or cost savings. In patients with paediatric-type tumours, the decision-analytic model predicted that PET would be associated with incremental costs and that for patients with suspected residual disease there would be some cost offset.