INAHTA Briefs

Issue 2002/17

Title Positron Emission Tomography (PET) for a Number of Services, March 2000

Agency MSAC, Medical Services Advisory Committee

Commonwealth Department of Health and Aged Care, GPO Box 9848, Canberra ACT 2601 Australia; tel: +61 2 6289 6811, fax: +61 2 62 6289 8799, msac.secretariat@msac.gov.au, www.msac.gov.au

Reference MSAC application 1025. Assessment report, ISSN 1443-7120.

Aim

To assess the safety and effectiveness of the services and under what circumstances such services should be supported with public funding.

Conclusions and results

Safety: PET is noninvasive and generally accepted as a safe diagnostic procedure. A large US study found no adverse reactions to over 80 000 doses of positron emitting radiopharmaceuticals.

Effectiveness: PET has improved diagnostic accuracy over conventional imaging for several indications:

- Detection of mediastinal and distant metastases not detected by conventional imaging in the staging of non-small cell lung cancer (NSCLC),
- Detection of metastatic disease in patients with potentially resectable metastatic melanoma;
- Detection of local recurrence, hepatic metastases, and extrahepatic metastases in patients with suspected recurrence of colorectal cancer; medically refractory epilepsy, and
- Assessment of viable myocardium that may respond to reperfusion in patients being considered for coronary revascularization.
- However, as with other imaging modalities, PET still has low sensitivity for the detection of early (ie, low volume or microscopic) metastatic disease.

[There are documented examples of where the results of PET have led to changes in patient management in these indications. There is, however, no direct evidence available at this time that can demonstrate that improvements in diagnostic accuracy provided by PET, and any subsequent management changes, lead to improvements in long-term health outcomes for patients. As such, it is difficult to establish the true clinical effectiveness of PET. In the case of residual/recurrent mass in patients treated for malignant glioma, there was no evidence PET was superior to SPECT imaging.]

Cost-effectiveness: Evaluating cost-effectiveness of PET is problematic due to uncertainties regarding the true clinical effectiveness (ie, patient health outcomes) and the true cost of PET. It is likely that the ongoing randomized trials will provide valuable information to help address these issues.

Recommendations

The evidence is currently insufficient concerning the clinical and cost effectiveness of PET to warrant unrestricted funding. Despite this, the evidence suggests that PET is safe, potentially clinically effective, and potentially cost effective for the indications reviewed. MSAC recommended PET receive interim funding in clearly specified clinical scenarios (see report).

(continued next page)

Prepared by Kirsten Howard, NHMRC CTC, Australia

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Method

The National Health and Medical Research Council (NHMRC) Clinical Trials Centre at the University of Sydney conducted a systematic review of the literature (with eligibility criteria defined a priori) on the role of FDG PET. The following sources were searched from commencement to March 2001: MEDLINE, PreMedline, National Library of Medicine Health Services Research Databases, CINAHL, Australian Medical Index, Biological Abstracts, Best Evidence, Current Contents, EmBase, the Cochrane Library, ISTAHC, and the NHS Databases, DARE, EED and HTA. Internet and health technology assessment agency sources were searched and studies were also identified from MSAC applications and members of the Supporting Committee.

Further research

Trials are currently underway that will provide information on the link between improvements in diagnostic accuracy from PET, subsequent patient management changes, and improvement to the health outcomes of patients. In addition, a detailed cost study is being conducted as part of a randomized trial in NSCLC which should provide a more accurate estimate of the likely cost of PET. Interim funding of prescribed clinical scenarios should produce useable data on clinical and cost effectiveness of PET in the future.

Prepared by Kirsten Howard, NHMRC CTC, Australia