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Intravascular Brachytherapy – November 2001

Agency MSAC, Medical Services Advisory Committee
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Reference MSAC Application 1041. Assessment Report

Aim

To assess the safety and effectiveness of intravascular brachytherapy (IVB) and under what circumstances such services should be supported with public funding.

Conclusions and results

Safety: The following safety conclusions were made:

- An appropriate multidisciplinary clinical team should conduct IVB.
- Catheter-based IVB exposes staff to radiation that is considered to be at an acceptable level.
- Patients are exposed to very low levels of radiation, as only a small local area of vessel wall is irradiated. Consequently, adverse events are more likely to be associated with vessel wall damage than with the development of malignancy.
- IVB may be associated with late thrombosis, but long-term antiplatelet therapy with new stent avoidance appears to reduce the likelihood of late thrombosis.
- Edge restenosis appears to be more pronounced with the use of beta-based IVB (either radioactive stents or catheter-based IVB).

Effectiveness: The effectiveness conclusions were based on level II and III-3 evidence:

- In the short-term, catheter-based IVB appears to significantly reduce angiographic restenosis and clinical revascularization. It does not significantly reduce the rate of MI or death. Current trials may be insufficiently powered to detect differences in these relatively rare outcomes;
- Long-term followup is limited, and it is unclear whether IVB defers rather than prevents the onset of restenosis following intervention.
- Significant technological and radiological differences between gamma and beta catheter-based IVB systems prevent direct comparison of the evidence on each system.
- The Guidant Intravascular Radiotherapy System and the Novoste Beta-Cath Intracoronary Radiation System show comparable effectiveness, but have not been directly compared in the same group of patients.

Cost effectiveness: Published, randomized controlled evidence suggests that the baseline cost per target lesion revascularization (TLR) prevented by IVB is $31 500 per TLR prevented. Sensitivity analyses suggest that the estimated cost effectiveness of IVB is sensitive to estimates of IVB treatment effect, baseline risk of TLR, and the cost of providing IVB. Based on an annual incidence of 500 to 1000 cases, the total incremental cost will be around $2.2 to 4.4 million.

Recommendations

MSAC recommended, on the strength of evidence, that public funding for IVB should be supported. However, as IVB could be replaced by drug-eluting stents in 3 to 4 years, the supporting committee recommends only interim funding, pending review in 3 years.

Method

The National Health and Medical Research Council (NHMRC) Clinical Trials Centre systematically reviewed the literature (eligibility criteria defined a priori) on the role of IVB. Sources searched to November 2001 were: MEDLINE, PreMedline, National Library of Medicine Health Services Research Databases, Biological Abstracts, Best Evidence, Current Contents, EMBASE, the Cochrane Library, ISTAHC, and the NHS Databases, DARE, EED, and HTA. Internet and HTA agency sources were searched and studies were identified from MSAC applications and members of the Supporting Committee.

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