Eur J Vasc Endovasc Surg **32**, 7–8 (2006)
doi:10.1016/j.ejvs.2006.02.001, available online at http://www.sciencedirect.com on SCIENCE DIRECT®

EDITORIAL

Screening for Abdominal Aortic Aneurysms: More Benefit than Cost

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The concept of screening for abdominal aortic aneurysms was first raised about 20 years ago.[1] Since, then Vascular Surgeons have endeavoured to show that population screening is worthwhile. Three large randomised control trials have now all shown that screening men aged 65–74 years reduces the mortality from abdominal aortic aneurysm by at least 40%.[2–4] Screening does not appear to be detrimental to quality of life.[2] There is also ample evidence from community-wide programmes, such as the Gloucestershire project, that such screening is feasible and effective.[5] The remaining issue to be considered is cost.

In this issue of the Journal, Jes Lindholt and colleagues report on the cost-effectiveness analysis of the Danish trial of screening for aortic aneurysms.[6] The trial involved 12,639 men aged 64–73 years, randomly allocated to an invitation for screening or to be a control. At a mean follow-up of 52 months, the risk of death from abdominal aortic aneurysm was reduced by an impressive 67%.[4] A simple but pragmatic economic analysis, based on the costs of screening, surveillance and surgery for aortic aneurysms yielded an estimate of £6090 per life-year saved at 5 years.

This magnitude of cost compares favourably with screening mammography for breast cancer.[7] It is similar to that estimated using Markov modelling of screening for aneurysms[8] but is considerably less than the £28,000 per life-year gained over 4 years (or about £36,000 per quality adjusted life-year) reported in the multicentre aneurysm screening study (MASS).[9] The reasons for the differences between the two studies are discussed and include greater mortality reduction and lower screening costs in the Danish trial. The costs associated with surgery in the Danish trial were based on a relatively imprecise Diagnostic Related Group (major vessel surgery outside the heart). The authors argue that this is representative of actual costs on the basis of an earlier validation exercise. However, their estimates are probably not conservative and did not include additional costs such as related re-admissions within 12 months of the original surgery. In addition, exercises such as quality adjustment weighting, discounting and sensitivity analysis (an assessment of the uncertainty of estimates) are not reported. Irrespective of the initial costings, the long-term cost-effectiveness of screening for aortic aneurysms is likely to improve dramatically with time due to cumulative survival benefit. In the Danish study the cost per life-year saved fell to £1227 at 15 years and in a recent analysis of the MASS data, a figure as low as £676 per quality-adjusted life-year gained has been reported at 30 years.[10]

In the Danish trial, the prevalence of 'abdominal aortic aneurysm-associated diseases' was lower in men failing to attend following an invitation to screening. This is surprising and is in contrast to both MASS and the Western Australian trial where the non-attenders were at much greater risk of death from aortic aneurysm than those attending and this consequently reduced some of the benefit of screening. A phenomenon that was observed in all three trials, and is currently being re-assessed, is an apparent reduction in all-cause mortality in the screened groups. The cause of this and its impact on cost-benefit is not known.

The cost-effectiveness of screening will vary in differing health systems. For example, in Australia, there has been long-standing universal availability of open-access imaging (ultrasound and CT scanning).

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This has resulted in a relatively high level of incidental detection and treatment of AAAs over the last two decades which in turn reduced the effectiveness of screening.[3] Another important variable in the cost equation is the extent to which endovascular rather than open aneurysm repair is used.[11]

Until the aetiology of abdominal aortic aneurysm is better understood and either primary or secondary prevention becomes possible, screening men aged 65 years may the best way to save lives. As the cost appears to be reasonable it is now time for governments and their policy-makers to make decisions.

Acknowledgements

PN and JG are supported by funding from the NHMRC (279408/379600) and the NIH (R01 HL080010-01).

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Accepted 1 February 2006
Available online 7 March 2006