

UK NATIONAL SCREENING COMMITTEE

SCREENING FOR ABDOMINAL AORTIC ANEURYSM

Background

The MRC sponsored a major trial of screening for Abdominal Aortic Aneurysm [AAA] which showed that in a research setting, involving five vascular surgical services in England, screening men for AAA resulted in a decline in mortality from ruptured aneurysm. The National Screening Committee has been considering the evidence, and in particular its implications if it were to be rolled out into the ordinary service setting.

During the process the NSC has been fortunate to have been advised by Alan Scott, one of the lead investigators of the MRC trial, who has acted as a consultant to the NSC. The appraisal of the evidence against the NSC criteria is attached as Appendix 1.

A review of the evidence, including a Cochrane Review covering a number of controlled trials, has been published and the findings are consistent with the MRC trial, which of course is part of the Cochrane Review. The US Preventative Services Taskforce has also considered the worldwide evidence and made recommendations.

Cost-benefit analysis demonstrates that screening for AAA lies within the range of cost-benefit values which are usually considered to be reasonable for implementation.

The issues

Certain aspects of the appraisal of this proposed screening programme are relatively simple.

The natural history of the condition is well understood. It is clear that mortality is associated with the increasing size of aneurysm and it is possible to predict the probability of mortality with aneurysms of a defined size.

The screening test is relatively simple, sensitive and reliable, and can be carried out by health workers who have no formal professional training. There is no complicated diagnostic stage in the screening programme. The size of the aneurysm detected on screening is an accurate predictor of the risk of mortality and there is not an extensive “grey zone” or zone of uncertainty; there is a clear cut-off between the aneurysm diameter which indicates the need for referral and treatment, and the size of aneurysm which does not require referral and intervention. When smaller aneurysms are detected, of a size for surveillance, there is the opportunity to build into the programme public health advice e.g on smoking cessation.

The treatment of the aneurysm is also effective and accepted.

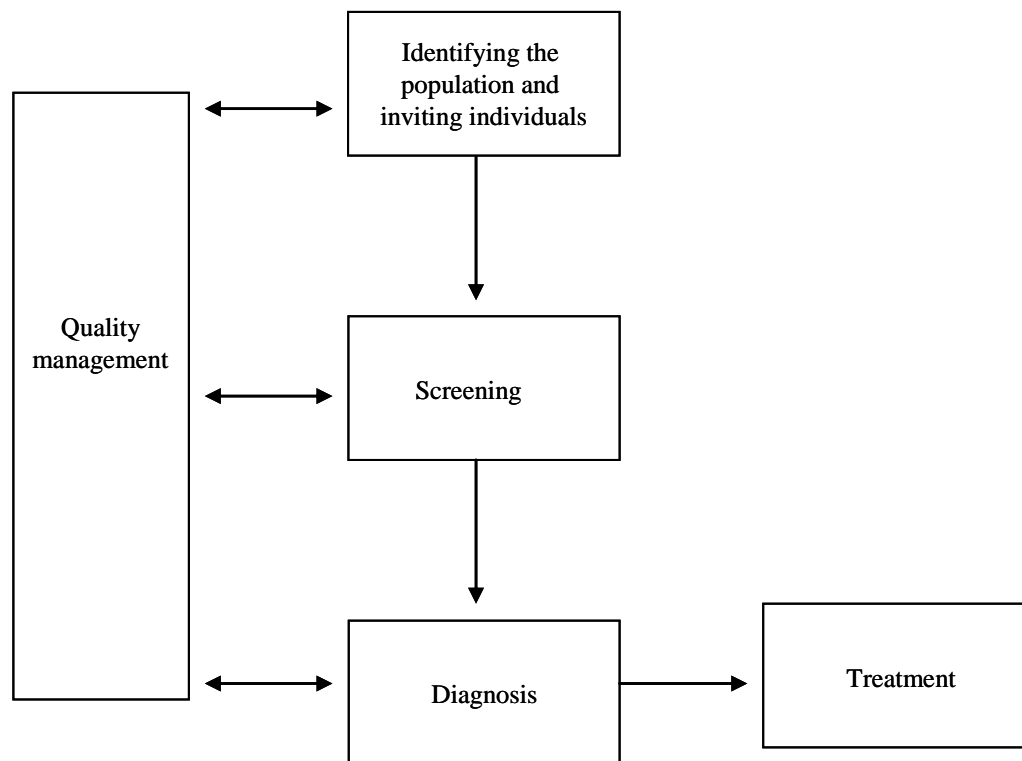
We have been waiting on the results of another MRC trial evaluating the potential contribution of endovascular repairs of aneurysms which, because they use minimal invasive techniques, could allow people who are not fit for open operation to be treated. The results of this trial to date, however, indicate that further research is needed into longer term outcomes and that there was no demonstrable benefit from endovascular repair in patients unfit for open surgical repair.

There are two major issues.

The first is the communication of the risk of mortality resulting from elective surgery. An elective operation for abdominal aortic aneurysm, like all other operations, carries a risk, in this case a risk of dying as a result of the intervention, and it seems that the risk is associated not solely, or even principally, with the skill of the surgeon but with the experience and competence of the service carrying out preoperative assessment, intra-operative care, and postoperative support and surveillance. The mortality reported in a major review of abdominal aortic aneurysm surgery in England is 7% in the immediate postoperative period (1). This is an average figure and it is therefore accepted that some units will have a higher mortality than this.

Of course having an aneurysm of the size which is deemed to be appropriate for surgery is a condition which, by definition, carries a significant mortality over the next five years, but the introduction of a screening programme would mean that some men would die as a result of surgery who might have been alive five years later if they had not elected to respond to the offer of screening. The way in which individuals trade off a lower probability of immediate harm with a higher probability of harm some time in the future varies from one person to another. It is determined by many different factors, including the way in which the options are put to the individual. If a programme were to be offered to the population, these figures would need to be made clear, and it might be that the men offered screening would want to know not only the average mortality from elective surgery in England or Scotland or Wales or Northern Ireland, but also the mortality in the hospital service to which they would be referred.

The second major issue is the quality of the treatment offered. In screening we do not directly control treatment services and do not set standards for treatment services, as shown in the figure below.



The National Screening Committee believes it unethical to set up a programme which would result in the referral of people to treatment services unless there are systems in place to minimise harm and maximise benefit.

The simplest way to do this is to encourage specialisation, and when the work on abdominal aortic aneurysm started, in England alone there were 129 surgical services offering vascular surgery. Often these services were offered by highly experienced and competent surgeons who were also general surgeons, but the pattern of surgical training has changed and even if hospitals were to wish to continue with a small number of surgeons, it is unlikely that the surgeons coming through vascular training at the moment would wish to apply for jobs. Indeed, they would be unable to apply for jobs in which a general surgical commitment was required as part of the job description because training has changed and they are not longer competent to carry out general surgical duties at consultant level. Thus there is also a professional trend towards larger teams covering larger populations. The recent report from the National Confidential Enquiry into Peri-operative Deaths has recommended that ‘clinicians, purchasers, trusts and Strategic Health Authorities should review whether elective AAA surgery should be concentrated in fewer hospitals.’

The proposal being made to the Vascular Society is that a suitable basis for a screening programme would be a population of at least one million with a team of surgeons, numbering perhaps six or eight, able to cover this population. This does not mean that services would have to be withdrawn from those hospitals which currently depend on those vascular surgeons who play a part in their surgical rotation because those surgeons would become part of larger networks. What it would

mean would be that elective surgery for abdominal aortic aneurysm would be concentrated in around fifty centres as opposed to taking place in over 120 as at present.

This proposal for screening services to be organised at this level and its consequences, have been modelled by the Health Care Standards and Quality Directorate Analytical Team of the Department of Health, based on the MRC trial results, working closely with Alan Scott, and the MRC Biostatistics Team. The NSC is grateful to them all. Their report is attached as Appendix 2. It is estimated, in England, that costs of a screening programme would be around £18 million in the first year, rising to around £30 million in the 8th year, with around £5.5million capital costs for the 60 additional hospital beds and £3.88 million for the extra 18 ICU beds. Approximately £1million will be required as a one off cost to set up a computer system for booking appointments.

Recommendation

Screening of men aged 65, with the offer of a single test being made at that age, can be recommended in principle as a programme that meets the criteria and standards of the National Screening Committee. The configuration of services is a critical issue to be considered further before any implementation of new screening programmes. Together with this, if resources were invested in decision aids to help men make a decision about whether or not to participate in the programme based on best current evidence and the accepted techniques for presenting risks in absolute terms, then

It is recommended that a programme should start with men aged 65 and would not attempt to recruit men over the age of 65, although an individual over the age of 65 who requested screening would be eligible to be offered a test.

It is not recommended that the test be offered to women at present because the mortality from ruptured abdominal aortic aneurysm is at present low. This policy should be reviewed in five years time.

Next steps

It will be for each UK country to consider the advice from the NSC and to determine whether to implement screening in light of their national and local priorities and the availability of funding for this programme in the NHS.

J A Muir Gray, CBE, DSc, MD, FRCP, FRCPSGlas, FCILIP
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