Screening ultrasonography for abdominal aortic aneurysm reduced mortality in older men and was cost-effective in the long term


Clinical impact ratings: GIM/FP/GP ★★★★★☆ Cardiology ★★★★★★★ Geriatrics ★★★★★✩

Question
In older men, does screening ultrasonography for abdominal aortic aneurysm (AAA) reduce mortality and improve cost-effectiveness in the long term?

Methods
Design: Randomized controlled trial (RCT) (Multicenter Aneurysm Screening Study [MASS]) and cost-effectiveness analysis from a health service perspective.
Allocation: [Concealed]†.*
Blinding: Blinded [data collectors and outcome assessors]†.*
Follow-up period: Mean 7.1 years (range 5.9 to 8.2 y).
Setting: 4 centers in the United Kingdom.
Patients: 67 770 men 65 to 74 years of age (mean age 69 y) who were registered with a family physician. Exclusion criteria included known AAA, previous surgery for AAA, or terminal illness.
Intervention: Invitation for screening ultrasonography for AAA (n = 33 883) or no invitation for screening (n = 33 887). Patients with aortic diameter (AD) ≥ 3.0 cm had AAA and were invited for recall scans to monitor growth. Those with AD 3.0 to 4.4 cm were rescreened annually; those with AD 4.5 to 5.4 cm were rescreened every 3 months; and those with AD ≥ 5.5 cm, aortic expansion ≥ 1.0 cm/y, or symptoms of aneurysm were considered for elective surgery. Patients with AD < 3.0 cm were not rescreened.
Outcomes: AAA-related mortality (death within 30 d of any AAA surgery or because of AAA with or without rupture or at an unspecified site), all-cause mortality, and cost per quality-adjusted life-year (QALY) gained. Costs were estimated in 2004 to 2005 U.S.$ with a 3% annual discount rate.
Patient follow-up: 98% (intention-to-treat analysis).

Main results
At a mean 7.1 years, the screening group had lower incidences of AAA-related and all-cause mortality than did the no-screening group (Table). The cost-effectiveness was estimated at $19 500 (95% CI 12 400 to 39 800) per QALY gained for AAA-related mortality and $7600 (CI 3300 to ∞) per QALY gained for all-cause mortality. 1-way sensitivity analysis showed that U.S.-based costs for scans and surgeries and a 50% increase in consultation costs led to a cost-effectiveness of $30 800 (CI 19 700 to 62 600) per QALY gained (costs retained at 2000 to 2001 U.S.$).

Conclusion
In older men, screening ultrasonography for abdominal aortic aneurysm reduced mortality and was cost-effective in the long term.

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References