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Objective.—Acquiring contemporary data on prevalence and natural history of abdominal aortic aneurysms (AAA) is essential in the effort to optimise modern screening programmes. The primary aim of this study was to determine the fate of a 65-year-old male population 5 years following an invitation to an aortic ultrasound (US) examination.

Methods.—In this population-based cohort-study, men were invited to US examination at age 65, and were re-invited at age 70. Mortality, AAA repair, and risk factors were recorded. An AAA was defined as a diameter ≥30 mm, and a sub-aneurysmal aorta as 25–29 mm.

Results.—In 2006–2007, 3,268 65-year-old men were invited, and 2,736 (83.7%) were examined. After 5 years, 24 had completed AAA repair (6 died within 0–4 years), an additional 239 had died, and 194 had moved. Thus, 2,811 70-year-old men were re-invited, and 2,247 (79.9%) were examined. The AAA prevalence increased from 1.5% at 65 to 2.4% (95% CI: 1.8 to 3.0) at 70, and of sub-aneurysmal aortas from 1.7% at 65 to 2.6% (2.0 to 3.3), at 70. Of 2,041 with <25 mm at 65, 0.7% had an AAA at 70. Of 40 with a sub-aneurysmal aorta at 65, 52.5% progressed to AAA at 70. In a Cox regression analysis, sub-aneurysmal aorta at 65 (hazard ratio [HR] 59.78) and smoking (HR 2.78) were independent risk factors for AAA formation. Among 44 with AAA at 65, 22 completed AAA repair with no 30-day mortality.

Conclusion.—AAA screening in a contemporary setting was safe at 5 years, with a single AAA rupture observed among non-attenders. Men with a screening detected AAA had a high repair rate and high non-AAA related mortality. AAA-formation was common among men with sub-aneurysmal dilatation, indicating a possible need for surveillance of this group (Fig 4).

So if I have an aortic ultrasound at age 65 and my aortic size is normal, am I good to go? Do I ever need to be screened again in my lifetime? The authors of this study sought to answer this question. Evidence from randomized controlled
trials and observational studies demonstrate that screening elderly men for abdominal aortic aneurysm (AAA) reduces long-term mortality for ruptured AAA. The most widespread strategy, screening men once at age 65, is partially or even fully implemented in many countries. This first report, from an ongoing population-based cohort study started in 2006 in Uppsala, Sweden, describes the fate of a 65 year-old male population 5 years after an invitation to an aortic ultrasound examination.

A large cohort of men were screened and divided into groups based on aortic size. An AAA was defined as an aorta > 30 mm and subaneurysmal aorta as 25 to 29 mm. Risk of progression was then calculated (Fig 4) after a follow-up examination 5 years later. For those patients with normal-sized aortas, <1% had an AAA 5 years later. Of those with a subaneurysmal aorta, a whopping 52% progressed to develop an aneurysm within 5 years. This article teaches us that perhaps not all screening can be reduced to a simple positive or negative result and that those patients with aortic diameters between 25 and 30 mm should be followed up at least 5 years after the initial screen and probably for life.

B. W. Starnes, MD

Foot CT perfusion in patients with peripheral arterial occlusive disease (PAOD): A feasibility study


Purpose.—To prospectively assess the technical feasibility and reproducibility of quantitative foot perfusion multidetector-row computed tomography (MDCT) in patients with peripheral occlusive artery disease (PAOD)
and to evaluate perfusion parameters changes after endovascular treatment.

**Materials and Methods.**—Institutional review board approval and informed patient consent were obtained. 10 patients older than 65 years (mean 74.1 years, range 66—95 years) with PAOD and who were referred to our department for single-limb endovascular treatment were enrolled prospectively. All patients underwent foot CT perfusion examinations before and within 72 h after endovascular treatment. A 64-row CT lightspeed VCT scanner (GE Medical Systems) was used with acquisition of eight contiguous 5-mm reconstructed sections (60-s acquisition time; 40 mL Iomeprol 400 mgI/mL, @4 mL/s). Data were analyzed by two blinded readers using commercially available software to calculate perfusion parameters. Inter-observer and intra-observer agreement of perfusion CT analysis was assessed using Bland—Altman analyses and intra-class correlation coefficient (ICC). Changes in perfusion parameters after endovascular treatment were assessed using Wilcoxon’s test.
Results. Good inter-observer and intra-observer agreement was obtained in all patients. Good agreement was obtained for perfusion parameters for the untreated foot and in repeated studies. By comparing perfusion parameters in the treated foot, a significantly shorter mean transit time (MTT) was obtained.

Conclusions. Foot CT perfusion is a feasible and reproducible technique. A significant decrease of MTT between pre- and post-revascularization suggests improved flow in the below-the-knee arteries (Fig 10).

This prospective study explores the feasibility, reproducibility, and interobserver reliability of foot computed tomography (CT) perfusion in patients with peripheral arterial occlusive disease (PAD). Ten participants with PAD were enrolled to have foot CT perfusion studies before and within 72 hours after endovascular treatment, but 3 were excluded from analysis because of motion artifact, calcification, and lack of vessels suitable for evaluation. Among perfusion parameters evaluated (blood volume, blood flow, mean transit time, and permeability surface), only mean transit time changed significantly after revascularization, suggesting that it may be the most sensitive of these measures. Given that 1 of the radiologists interpreting the results was a resident with limited vascular experience, the reported intraclass correlations likely represent relatively conservative estimates (but indicated excellent agreement nonetheless).

Assessment of foot microcirculation using CT perfusion may have specific relevance for treatment decisions in diabetic patients, particularly those with foot wounds that are not primarily ischemic (including neuropathic ulcers). Given the feasibility, reliability, and reproducibility of foot CT perfusion demonstrated in this analysis, the logical next step to determine clinical utility would be an assessment of this technique’s ability to predict wound healing or other clinical end points. Given that the method requires contrast administration and has limitations related to calcification and motion artifact, specific advantages over transcutaneous oxygen tension (the available alternative for assessing microvascular perfusion) would need to be identified for it to become a routine tool for clinical care.

M. Corriere