**Patients with three-vessel coronary artery disease should be screened for abdominal aortic aneurysms**

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Several population-based studies as the Viborg trial or the MASS (Multicentre aneurysm screening study) trial have shown benefit in terms of mortality from screening for abdominal aortic aneurysm amongst men aged 65 years. In addition, the MASS trial demonstrated that screening is also cost-effective. In contrast, several recent studies from the group of Norman in Western Australia, Anjum and Powell in the UK and Svensjö in Sweden have indicated a decrease in the prevalence of abdominal aortic aneurysm in the general population, so that the utility of aneurysm screening programmes can be questioned. As the association between abdominal aortic aneurysm and atherosclerosis has been reported in epidemiological studies, there are arguments for a more targeted aneurysm screening strategy in selected groups of patients with an elevated risk of aneurysm development and more specifically in patients with coronary artery disease.

In order to clarify the current prevalence of abdominal aortic aneurysm in the population with coronary artery disease, we conducted a prospective screening study at the University Hospital of Liège (Belgium) between March 2009 and August 2010. All patients undergoing coronary angiography were eligible for an ultrasound examination of their abdominal aorta. A total of 1,000 patients were included. We found that the presence of three-vessel coronary artery disease was significantly associated with a higher prevalence of abdominal aortic aneurysm in multivariate analysis (p <0.001, OR=10.5; 95% CI: 2.72–40.1). We reported that the prevalence of abdominal aortic aneurysm reached 14.4% in male patients with three-vessel coronary artery disease regardless of age and more than 16% for the same group of patients aged 65 and over. These data suggest that patients with three-vessel coronary artery disease could be a good target group for aneurysm screening.

Nevertheless a high prevalence of abdominal aortic aneurysm in a specific population does not mean de facto that the screening will be effective in this population. We have to consider the screening cost and the benefit in terms of aneurysm-related mortality and all-cause mortality. As patients with coronary artery disease require regular follow-up with a cardiologist including transthoracic echocardiography, it makes sense to perform an opportunistic ultrasound examination of the abdominal aorta during the same procedure. Aboyans et al have recently published the results of the E2T3A study, a French prospective multicentre study that assessed the feasibility and criteria for screening for abdominal aortic aneurysm during transthoracic echocardiography in real-life practice. The authors have shown that the screening for aneurysm during transthoracic echocardiography was highly feasible at the extra cost of on average three minutes and that, even among cardiologists with low experience in vascular imaging the feasibility rate was very high. In this screening method, the equipment used for the imaging of the aorta was the same used for the transthoracic echocardiography (same probe and ultrasound echo machine). Previously, Cueff et al reported that the accuracy of the measurement of the abdominal aorta using a portable cardiac ultrasound echo machine with a 2.5MHz probe was excellent compared with the measurements performed by a radiologist using a dedicated vascular ultrasound system.

In light of the above, opportunistic examination of the abdominal aorta during routine echocardiography appears largely feasible, requiring only a short additional time and no extra cost. Nevertheless, there are few data in the literature that assess the effectiveness of screening in a high-risk population to reduce all-cause mortality and some limitations exist that may contribute to decrease survival benefit of screening for aneurysms in the population of patients with coronary artery disease. Indeed the life expectancy of patients with coronary artery disease is lower than in the general population and the operative mortality of open or endovascular aneurysm repair (EVAR) in patients with coronary artery disease could be higher. The EVAR 2 trial has shown that EVAR was not effective to reduce all-cause mortality and aneurysmrelated mortality compared to medical therapy alone in patients with large aneurysms considered unfit open repair. However, the effectiveness of screening to reduce aneurysm-related mortality in high-risk patients has been shown by Jes Lindholt in a substudy of the Viborg study. In this trial, screening was effective to reduce aneurysm-related mortality in high-risk patients with chronic obstructive pulmonary disease and/or cardiovascular diseases. In summary, as the prevalence of abdominal aortic aneurysm is high in men with coronary artery disease aged >65 years and in those with three-vessel disease regardless of age, we recommend opportunistic examination of the aorta during routine transthoracic echocardiography in this population. Indication for repair (open or EVAR) should be analysed on an individual basis, taking into account patients’ preferences and cardiac and non-cardiac factors, and take place after optimisation of the cardiac treatment. Further studies are needed to establish mortality benefits.

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