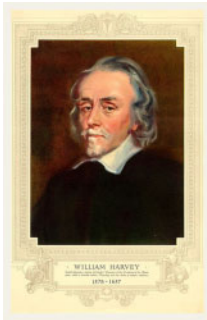


Cardiologists should not lose their peripheral vision: a plea against ‘peri-anopsy’ in cardiology



Eight years from now, we will celebrate the 400th anniversary of the publication of *Exercitatio Anatomica de Motu Cordis et Sanguinis in Animalibus*,¹ where William Harvey demonstrated the blood circulation. Since then, the cardiovascular system has been considered as an entity, across more than three centuries.

Until a couple of decades ago, cardiologists throughout Europe specialized in the diagnosis and management of diseases affect-

ing the heart and vessels. The discovery of atherosclerosis as a generalized vascular disease and the mechanisms of venous or arterial embolism contributed to a holistic vision of the cardiovascular system. However, with the accelerating development of technology starting in the 1970s, cardiology has become one of the most hyper-specialized disciplines of medicine, divided into several subspecialties requiring each cardiologist, especially in academic centres, to stay increasingly focused in his/her domain. This, in conjunction with the high prevalence and burden of cardiac diseases, leads to a progressive loss of interest in the peripheral vessels for most cardiologists, especially the leaders in each sub-specialty, who in turn, taught cardiology, rather than cardiovascular medicine, to their fellows.

In order to fill the gap, other physicians have gradually replaced cardiologists in the care of patients with peripheral vascular diseases (PVDs), who have progressively disappeared from cardiology wards. In some countries, such as the UK and the Scandinavian countries, vascular surgeons are nowadays managing, both medically and surgically, patients with peripheral arterial diseases (PADs) while the thrombo-embolic venous disease is managed by thrombosis specialists, mostly from internal medicine and haematology. In other countries, angiologists have increasingly taken care of these patients.

Since the 1990s, a discipline of vascular medicine has been created in many countries in Europe and North America, in order to propose specific management for these patients, who deserve the same attention as patients with cardiac diseases, but yet, are mostly treated less optimally. This evolution is welcome for a structured management of these patients while cardiologists are mostly looking elsewhere. However, in countries where residents can opt either for cardiology or vascular medicine as two different specialties, this may lead to consider peripheral vascular diseases out of the scope for those who have chosen to take care of cardiac patients, even though PVDs are included in the core curriculum by the ESC. Indeed, in a European survey run a couple of years ago, young cardiologists reported less interest and practice in PVDs.²

However, this trend may increase the rift between cardiologists and vascular diseases, while the ability to diagnose peripheral vascular diseases would significantly impact on the management of their patients. In fact, many patients with cardiac diseases also have vascular conditions and vice versa, requiring an all-round vision of their cardiovascular health, sometimes missing when cardiology, stroke centres, and vascular departments are watertight compartments.

It should be acknowledged that many cardiologists do not even palpate the peripheral pulses during their consultation and do not interrogate their patients about vascular symptoms such as claudication, while the diagnosis of these conditions may reclassify cardiovascular risk and shift to a more intensive management. Many cardiologists prescribe exercise tests to their patients to screen for coronary artery disease, but few wonder why some patients have submaximal efforts because of limb limitations, which in turn could identify high-risk patients for coronary artery disease (CAD). In daily practice even in general cardiology, the assessment of peripheral vessels is not systematically integrated into the ‘cardiovascular check-up’.

Peripheral arteries are not only an entry point to reach the heart by catheterization; they are also an easily accessible window to assess cardiovascular health. Thousands of publications over the past decades demonstrated the role of investigating peripheral vessels to predict cardiovascular events, from the assessment of endothelial function at the level of radial arteries, to the measurement of the ankle-brachial index (ABI), to carotid and femoral imaging and to the estimation of aortic stiffness.³ In addition, concomitant disease in two or three vascular beds (coronary, carotid, or lower extremity) represents the single most powerful predictor of the occurrence of adverse vascular events.⁴

When a patient complains of chest pain, the existence of carotid or femoral plaques increases the probability of coronary artery disease.^{5,6} Those plaques are easily accessible if a vascular ultrasound probe is available just next to the cardiac probe on every echocardiography machine, and if the cardiologists develop the ‘carotid reflex’ by scanning them at the end of any echocardiography session. Beyond the cardiac risk, our ability to use the ultrasound probe also enables us to identify high-risk vascular lesions, such as an abdominal aortic aneurysm (AAA), a cause of death for more than 10 000 patients in Europe every year. A multicentre study has shown that 5% of male patients >65 years undergoing echocardiography have an AAA, which can be detected on average in less than 3 min by prolonging the cardiac assessment with an aortic assessment using the same probe.⁷ This rate is even higher in patients who had either aortic regurgitation or an enlarged ascending aorta.

Interestingly, while cancer and cardiovascular diseases (CVDs) are the two first major causes of death in our countries, cancer benefits

Table 1 The Ten Commandments for the integration of the peripheral vasculature in the clinical practice of cardiologists

Interrogate systematically for limb pain (as for chest pain) during cardiovascular check-ups. Peripheral pulse palpation and auscultation should always follow the clinical cardiac exam.
Integrate peripheral arteries testing during cardiovascular check-ups: ultrasound imaging of carotid and femoral arteries and measurement of the ankle-brachial index (ABI) in patients with risk factors (e.g. diabetes, hypertension, age >65 years). Stronger preventive strategies are required if plaques are detected and cardiovascular risk is reclassified as 'very high' (e.g. lower LDL-cholesterol targets).
Use the imaging of atherosclerotic plaques in peripheral arteries to inform the patient about his/her subclinical disease so to improve implementation of preventive measures (e.g. smoking cessation).
Assess peripheral arteries in patients with CAD. Patients with CAD and PADs are at highest risk and require the most intense secondary prevention strategies. Carotid disease is frequent in case of severe CAD and is a source of stroke. In patients with chest symptoms, the odds for a cardiac origin is increased when PADs are identified (e.g. carotid plaques).
Consider vascular screening in patients with other major cardiac diseases (heart failure, atrial fibrillation). Vascular screening (ABI or Doppler) improves risk stratification in patients with atrial fibrillation (CHA ₂ DS ₂ -VASc score) and may affect antithrombotic strategy.
Consider cardiac work-up in case of PADs, especially if peripheral intervention is considered. Patients with PADs are at highest odds for CAD than vice versa.
Assess the aorta as a whole. Patients with an aneurysm in one segment (e.g. thoracic aorta) are at higher risk of aortic aneurysm elsewhere (e.g. abdominal aorta).
Screen for abdominal aorta aneurysm in patients at risk, especially males >65 years of age, and smokers. An opportunistic screening can be done at the end of any echocardiographic exam.
Assess peripheral arteries in patients with acute or chronic aortic dissection.
Use the two-point femoral and popliteal ultrasound during the diagnostic work-up for pulmonary embolism.

from large population screening programs, while no screening strategies for CVDs are implemented. The single trial which proved that screening can reduce cardiovascular deaths was focused on identifying vascular diseases: not only hypertension but also PAD by measuring the ABI, and AAA by a quick abdominal ultrasound imaging. Such a screening strategy followed by adequate management has been shown to reduce overall mortality by 7% at 4.4 years.⁸ In contrast, and despite routine practice, we do not yet have any trial demonstrating that cardiac assessment (exercise testing) in the general population or high-risk patients could reduce CVD events.

Even in patients who already have cardiac disease, the coexistence of PAD identifies patients at the highest level of risk, and all the new preventive drugs are even more efficient in these patients.

A minority of cardiologists are electrophysiologists, but all can read an electrocardiogram, interpret most common abnormalities, and refer some patients to the experts of arrhythmias. Similarly, all cardiologists should at least have a basic knowledge and practice in peripheral vascular medicine, which we summarize in *Table 1*. Beyond individual clinical practice, and as recommended by ESC guidelines, 'vascular teams' should be set up in every healthcare centre where cardiologists should be part of a multidisciplinary team, along with vascular physicians and surgeons, for the sake of optimized management of cardiovascular patients.

Finally, academic structures and scientific societies should support this holistic view. The ESC provides at a regular pace guidelines on PADs,⁴ and specific chapters on peripheral vessels are integrated in most other guideline documents. The ESC Working Group on Aorta and Peripheral Vascular Diseases has a main objective to offer a place for interaction among all specialists taking care of patients with these conditions and to increase the awareness and knowledge of these conditions among cardiologists.⁹ However, efforts are still necessary at all stages through the five pillars of the ESC to raise the interest and willingness to learn more about PVDs.

Every cardiovascular patient needs to be addressed without 'peri-anopsy', integrating the state of peripheral vessels in the management, so as to improve the overall outcomes and quality of life.

As the heirs of William Harvey, let us make the peripheral circulation central again.

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References

References are available as [supplementary material](#) at *European Heart Journal* online.

