

Editor's Page

Cardiovascular Imaging: All Techniques Under One Roof

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There is great interest nowadays in the future of cardiovascular imaging and non-invasive diagnosis. This policy sets out common goals for developing diagnostic services in large cardiac departments, jointly with other specialities. Echocardiography will remain the workhorse of diagnosis in cardiology for the foreseeable future, because it is uniquely informative about cardiac structure and function, and also accessible, cost-effective, and harmless.

It is well known that continuing developments in medical technology and clinical research are constantly expanding the range of imaging tests and diagnostic measurements. There are many different choices in the approach to the patient with cardiovascular disease. Echocardiography, scintigraphy using single photon and positron emitting radiopharmaceuticals (SPECT), magnetic resonance imaging, with or without a paramagnetic imaging agent, and X-ray computed tomography, are the non-invasive choices for cardiovascular disease. The selection of which test to use to establish a diagnosis of abnormal function should be based on a broad perspective and expert knowledge of what each technique can offer. Collaboration should of course also embrace non-invasive and invasive services, because these approaches are complementary rather than competitive. Colleagues who specialise in either approach should have some education and experience in all imaging modalities. Advice should be based on clear data from well-conducted research establishing accuracy, reproducibility, and safety.

Different imaging modalities and tests may be appropriate for screening asymptomatic individuals or for identifying a disease and then monitoring its re-

sponse to treatment. The utility of applying a test may vary between populations and within individuals with different pre-test probabilities of disease. Some tests may be very effective in the controlled conditions of a clinical research study, but inefficient in routine clinical practice.

The clinical use of diagnostic imaging technologies available in a cardiac unit and hospital should be coordinated through a joint service. This should be managed by a group of specialists, including clinicians and radiologists, and chaired by an expert in several cardiovascular imaging modalities.

It is well-established that echocardiography and coronary arteriography are performed within cardiology departments under the supervision of cardiologists. Nuclear cardiology is usually managed by a team of experts, including physicists or nuclear medicine physicians and cardiologists. The newer tomographic imaging techniques, such as magnetic resonance and X-ray computed tomography, have been developed by radiological and cardiological research groups, and it is appropriate and timely now to integrate them into clinical practice.

There should be joint educational programmes that rotate fellows who are training in cardiovascular medicine through echocardiography, cardiovascular magnetic resonance, nuclear cardiology, and X-ray computed tomography, with optional experience in positron emission tomography or vascular ultrasound if it is available. Finally, diagnostic guidelines should compare all the methods that can be applied to a particular clinical question and new criteria should be developed for judging the quality of diagnostic research.