The past, present and future of ultrasound

Peter Corr

MBChB, FFRAD(D)SA, FRCR, MMed(UCT),

Department of Radiology, University of Natal.

This year represents fifty years of the application of ultrasound in medical practice. Ian Donald, a Glasgow obstetrician, appreciated the potential value of ultrasound for foetal imaging in 1947. With rapid developments in computer hardware and software, and transducer technology in the 70s and 80s, two fundamental changes occurred. Firstly, the applications for which ultrasound could be used increased dramatically and secondly the actual cost of lower end ultrasound units decreased markedly.These two factors worldwide have created the fastest growing market in medical imaging. Today one out of every four imaging studies globally is an ultrasound examination.

With this rapid growth in ultrasound use today has come many problems. South Africa is not isolated from this worldwide phenomenon. Inappropriate use of ultrasound by untrained or poorly trained operators has damaged the reputation of this excellent, cost effective form of imaging. It is important that the professional bodies, medical aid societies and government appreciate the importance of good and thorough ultrasound training from accredited training centres in South Africa. Only by accrediting ultrasound operators and providing training facilities can we as a society protect and enhance the standard of ultrasound practice locally. In the new year, the ultrasound users group of the society will initiate an accreditation programme for ultrasound operators and practices. We hope that you will support this programme.

What of the future? The technological advance continues - routine use of 3-dimensional imaging of structures such as the carotid, hepatic and coronary arteries is a year away. Three-dimensional foetal imaging is now a reality. Endoluminal ultrasound is making great advances with thinner 6 french 20 MHz transducers which can be placed in the biliary tree, ureters and medium sized arteries. Fully digital top of the range scanners have been developed in the last two years with outstanding imaging clarity. In fact this technology is now available in South Africa. Perhaps the most exciting development is the applications of ultrasound contrast media. These agents have the potential to extend the application of ultrasound into functional imaging. Perfusion studies of organs such as the myocardium will shortly be possible.

All these technological advances are exciting. Radiologists are uniquely placed to play a decisive role in the development and growth of ultrasound. However it is imperative that radiologists grasp the opportunity that ultrasound presents and become experts in its applications. Only by providing expertise unavailable elsewhere will the role of radiologists in this exciting imaging modality be protected and nurtured in the years ahead.