《招待講演 (4)》

Ace of Hearts

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In the last 2 decades radionuclide studies of the heart have found wide application to detect coronary artery disease, characterize jeopardized myocardium, identify the site and extent of acute necrosis, and determine the functional impact of these processes. The technology has advanced, through development of new radiopharmaceuticals and instrumentation. Specific measurements of perfusion, chamber volume, global and regional function and metabolism can be readily made. These techniques will continue to find widespread application, since the physiological data from radionuclide imaging adds significant insight about the status of the myocardium when added to anatomic techniques, such as ultrasound, angiography, MRI and fast CT.

We can expect significant advances in our understanding of cardiovascular disease as small light weight instrumentation allows continuous monitoring of function during activities of daily living and as new radiopharmaceuticals are developed for measuring receptor occupancy and the rate of progression of atheromatous disease. These advances in imaging, coupled with new therapeutic agents for heart failure and cholesterol lowering drugs, will allow better risk stratification and more precise use of medication. These considerations suggest that of all the imaging procedures available for evaluation of the cardiovascular system, radionuclide techniques are the "Ace of Hearts".

《招待講演 (5)》

Quantitative Bone Mineral Assessment in Osteoporosis

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Considerable effort has been expended in the development of methods for quantitatively assessing the skeleton so that osteoporosis can be detected early, its progression and response to therapy carefully monitored, and its risk effectively ascertained. Numerous quantitative methods have been used with variable precision, accuracy and sensitivity. Precision here meaning longitudinal reproducibility in serial studies, accuracy meaning reliability that the measured value reflects true mineral content, and sensitivity meaning capacity to readily separate an abnormal from a normal population or to readily detect changes with time in a patient or in a population.

One of the earliest methods developed, single photon absorptiometry (SPA), measures principally cortical bone of the radial diaphysis while the introduction of rectilinear scanning provides improved precision for area measurement of the radial metaphysis and calcaneous, sites of proportionally greater trabecular bone. In the last 10 years, techniques have become available that