

Nuclear Medicine Now

We salute the 25th Annual Meeting of our Society—an appropriate time to reflect on the achievements of these years. Nuclear Medicine has attained imposing proportions, providing a broad spectrum of diagnostic procedures. Indeed, its development has been so rapid that it has been an arduous task for us to stay abreast of this expanding discipline and nigh impossible for our colleagues in other areas of medicine to do so. When one considers the information provided by radionuclide procedures today, it is difficult to appreciate the diagnostic dilemma faced by the clinician before the availability of these clinical radiotracer methodologies.

In what other area of medicine has the knowledge and expertise of so many varied scientific disciplines been collectively directed to the advancement of medical science! It is stimulating to observe that the cooperative spirit that has brought us thus far so rapidly is even more intense today, presaging continued and accelerated developments in nuclear medicine.

Now let us take stock of our specialty:

1. The diagnostic contributions of bone and joint imaging have changed the approach to bone disease and particularly to the evaluation of the oncologic patient.
2. The universally enthusiastic acceptance of radionuclide cardiology underscores the importance of this procedure in the cardiologists' approach to heart disease.
3. Ventilation-perfusion studies provide information on pulmonary and airway status difficult to obtain otherwise, except by invasive means.
4. Combined hepatosplenic imaging with radiopharmaceutical colloids offers the unique opportunity to evaluate anatomic abnormalities and indirectly to diagnose changes in portal venous dynamics. Simultaneous studies with two or more radiopharmaceuticals can demonstrate the vascularity or metabolism of hepatic lesions; and with appropriate data processing, differentiation between neoplasm and other mass lesions can be made in nearly every instance. The newer hepatic cell agents offer exciting approaches to the diagnosis of hepatic excretory and cholecystic problems.
5. Pancreatic imaging using Se-75 methionine (discarded by most departments for good reasons) in frontal tomographic format is now an excellent procedure.
6. The measurement of thyroid function, definition of anatomic abnormalities, intrinsic and aberrant, and the treatment of thyroid disorders are firmly established radionuclide procedures.
7. The study of renal glomerular and tubular function, detection of urinary obstruction and reflux, and repetitive evaluation of renal transplant status have established renal nuclear medicine.
8. Gallium imaging for neoplasia and inflammation has proven its reliability. When the studies are performed with tomography or with the removal of interfering radioactivity by use of multiple radionuclides, gallium imaging is an impressive and valuable tool in these diseases.
9. Dacryocystography offers anatomic and physiologic data difficult to obtain by older methods.
10. The pathophysiology of cerebrospinal fluid circulation is best measured by cisternography. When the dynamic studies are interpreted in the context of normal physiology, the accuracy of diagnosis is imposing.
11. Radionuclide cerebral angiography has proved to be the most sensitive noninvasive procedure for the evaluation of changes in cerebral blood flow at the perfusion level. In cerebrovascular disease, these dynamic studies have twice the sensitivity of contrast angiography and three to four times the sensitivity of transmission axial tomography.

12. Although just recently available for clinical application, single emission cranial computed tomography has already demonstrated its capacity to define and to localize neoplasms less than 1 cm in diameter, and to reveal masses in areas that are frequently obscured on two-dimensional brain images.
13. And last, but certainly not least, is radioimmunoassay, the procedure that has vastly expanded the understanding and diagnoses in endocrinology and toxicology.

In this brief survey a number of other good studies have not been mentioned; e.g., the evaluation of vascular integrity of the extremities; the localization by intra-arterial macroparticles of ischemic areas in muscle for biopsy; the differentiation of testicular lesions by vascular blood pool studies; the detection of esophageal and gastric reflux, ectopic gastric mucosa, and intestinal bleeding; the quantitation of gastric emptying; etc.

Twenty years ago I attended a nuclear medicine meeting that featured lectures and commercial exhibits. The number of radionuclides discussed could be counted on the fingers of one hand, and the instruments exhibited required about 20 feet of table space. At the Society meeting in St. Louis 10 years ago, the dual-head rectilinear scanner was the most impressive instrumentation development, and information on the "new" perfusion lung scanning procedure was eagerly received. June 1978—emission tomographic scanning represents yet another clinically valid modality. At the meeting in 1988—the possibilities are limited only by the extent of our imagination and enthusiasm.

We wonder if the Founders* of the Society of Nuclear Medicine, whose signatures appear on the cover of this issue, ever envisioned Nuclear Medicine as we know it today.

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Editor

*The Founders' Group, as identified on the program of the First Annual Meeting of the Society of Nuclear Medicine, which took place May 29-30, 1954, at the Benjamin Franklin Hotel in Seattle, Washington, includes (in alphabetical order): A. Kearney Atkinson, M.D.; Thomas Carlile, M.D.; Eggert T. Feldsted, M.D.; William H.

Hannah, B.S.; Milo Harris, M.D.; Norman J. Holter, M.A.; Rex L. Huff, M.D.; Tyra T. Hutchens, M.D.; Robert G. Moffat, M.D.; Joseph R. Nealen, S.J.; Asa Seeds, M.D.; and Charles P. Wilson, M.D. Their signatures were reproduced for use on the cover of this issue from the Society's Articles of Incorporation.