COMMENTARY

POISED FOR THE "NEXT PLATEAU"

Nuclear medicine is poised to take another major step forward that would lift our specialty to the "next plateau." Our professional societies, however, must more actively interact in the political and academic processes at all levels to assure continued funding of nuclear medicine research and training programs.

Research in nuclear medicine has prospered from the special relationship between basic scientists and physicians. This rapport has provided an environment in which the utmost in basic, technical, and clinical science expertise was brought to bear on a specific problem—frequently resulting in an innovative solution. To continue this fruitful cooperative endeavor, nuclear medicine must attract talented individuals completing their graduate training.

We can achieve this goal if the advances in imaging technology, in the understanding of fundamental physiologic processes, and in the early detection and treatment of diseases are clearly presented to potential trainees. This effort would help correct the misconception that the nuclear medicine field as a whole is not progressing as rapidly as some of its newer technologies, such as nuclear magnetic resonance.

We must also address the issue of research funding. It has become increasingly difficult in the United States to obtain grants supporting medical research in general. The recent cutbacks in federal funding have made the arduous task of obtaining a research grant from the National Institutes of Health nearly impossible. This problem has discouraged even seasoned investigators, and driven many young investigators into clinical practice.

While nuclear medicine is fortunate to have an alternative funding source in the U.S. Department of Energy (DOE), these funds are largely designated for the development of new technology rather than the evaluation of biologic processes. Although this funding has been the mainstay of several established centers of nuclear medicine research, the DOE budget is not designed to advance the clinical applications of new procedures.

Industry has offered modest support for clinical research. In the past few years, several of the smaller radiopharmaceutical and instrumentation manufacturers have become subsidiaries of large corporations. Instead of improving the funding situation, however, this development has exacerbated the problem because the profit contribution of nuclear medicine activities to the corporation's "bottom line" has shrunk. Unless these corporate giants can identify a significant profit contribution at some future time, it is likely that their continued support of basic research in nuclear medicine will remain inadequate.

Despite the dearth of research funds, there is excitement today in our specialty. Three areas stand out as beacons, guiding other specialists to nuclear medicine:

- The potential of radiolabeled specific antibodies has attracted immunologists, oncologists, radiotherapists, and surgeons. Presentations at the Society's Annual Meeting in Houston indicate that antibody imaging will gradually assume a clinical role in the detection of tumors, clots, and myocardial infarctions, and has an intriguing potential for specific radiotherapy.
- Imaging specific receptors in the brain with positron emission computed tomography (PET) has had a major impact on the neurology research community.
- The potential of PET in the evaluation of suspected myocardial ischemia has attracted the cardiology community. Recent findings with metabolic and perfusion markers during ischemia have suggested that PET imaging will be useful in distinguishing between viable, dysfunctional, and dead tissue. The prevalence of coronary disease, its economic impact, and the availability of effective treatment procedures make the cardiac applications of PET a likely area for major research in the immediate future.

The future of nuclear medicine requires the development of new procedures to broaden the patient base we serve. To develop these procedures, we need to attract creative investigators into our specialty, and we need to secure the funding necessary to support them. Both of these objectives pose significant challenges for the nuclear medicine community, and if we meet these challenges, we will remove the obstacles that delay our reaching that "next plateau."

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