

uptake test or any other test to provide an  $FT_4$  index [such as the newly developed effective thyroxine ratio (ETR) test] should be used routinely on patients with  $T_4I$  values outside the normal range. If such in vitro testing results in a normal value, the necessity for further confirmation of the hypothyroid or hyperthyroid state by the in vivo  $^{131}I$  thyroid uptake test is eliminated. In our series such a sequence would have meant performing 117  $T_3$  or ETR tests on those 57 and 60 patients with  $T_4I$  values less than  $2.7 \mu g\%$  and greater than  $9.3 \mu g\%$ , respectively. The cost generated would have been 107% that of a  $T_4$  test alone compared with the 200% cost of performing routine  $T_4$  and  $T_3$  or ETR tests on all patients.

In summary, we argue that a logical sequence of tests should be used in establishing the presence of hypothyroidism or hyperthyroidism, that the first test done be the  $T_4$  test, followed, when the  $T_4I$  value

is outside the normal range, by the  $T_3$  resin-uptake test or other test providing an  $FT_4$  index, and that further tests such as an  $^{131}I$  thyroid uptake should be used as indicated in conjunction with a careful history and physical examination before treatment by drugs, surgery, or radioiodine.

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## RADIOSTRONTIUM LOCALIZATION IN NORMAL LUNGS?

## OCCULT ASPERGILLOSIS VERSUS "APPARENTLY NORMAL" LUNGS

The observations regarding uptake of radiostrontium in lungs and other extraosseous tissues (1) are of considerable interest. Because of limitations of current diagnostic methods in pulmonary aspergillosis (2) and following up on the report by Ray, et al (3),  $^{87m}Sr$  lung scans have been routinely used in the diagnosis of pulmonary aspergillosis at this center for the past 18 months. Radiostrontium consistently localizes in areas of radiological abnormality in various forms (allergic, invasive, and mycetoma) of pulmonary aspergillosis. To date strontium lung scans have been performed in 51 patients (18 with pulmonary aspergillosis), and the consistent reliability of this procedure in the diagnosis of pulmonary aspergillosis is impressive; these observations have been presented (4) and have been accepted for publication (5).

The report by Chaudhuri, et al (6) regarding radiostrontium localization in the radiologically normal lungs of a multiple myeloma patient without macroscopic or microscopic evidence of pulmonary calcification at autopsy (1) does not necessarily imply that the patient had "normal" lungs. This patient may have had occult pulmonary aspergillosis because this is the clinical setting where invasive aspergillosis occurs (7), and even at autopsy the diagnosis may be missed unless a determined histological search for *Aspergillus* is made using specific stains (7,8).

On the evidence presented, it is difficult to accept

that radiostrontium localizes in normal human lungs, and this is certainly not the case in our experience.

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