CONSECUTIVE-DAY SCHILLING TESTS

The recently published study by Grames, et al (*1*) brings up the question of the relative merits of diagnostic procedures. The lack of objective criteria will usually make the choice of a particular procedure one based on personal preference. In this instance I would like to propose that a previously described modification of the Schilling test with simultaneous administration of free and intrinsic factor (IF)-bound vitamin B_{12} (B_{12}) is the preferred procedure.

Grames, et al conclude from their study that "patients suspected of having pernicious anemia can be studied with the baseline Schilling test on one day and the repeat Schilling test with IF on the following day." Although one cannot argue with this conclusion, I would like to suggest from my experience that simultaneous measurements of free and IF-bound B_{12} in either urine (*2*) or plasma (*3*) have all the advantages of the consecutive-day measurement mentioned by the authors and, in addition, that they eliminate the problems of incomplete specimen collection or poor renal function. I would like to suggest also that the only reason the authors have not considered using this procedure with simultaneous administration of free and IF-bound B_{12} is that until recently free and IF-bound B_{12} have not been available in a commercial kit.

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THE AUTHORS' REPLY

The simultaneous technique with free and intrinsic-factor-bound B_{12} was not unknown to the authors. Our study did not compare various techniques nor did we claim that consecutive-day urinary excretion was preferred over the simultaneous method. The primary purpose for publishing the results of this study was to dispel the commonly held concept that a prior flushing dose of unlabeled B_{12} would invalidate a repeat examination.

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RADIOZINC AS A SCINTIGRAPHIC AGENT FOR THE HUMAN PROSTATE

We read with interest the paper by Chisholm, et al (*1*). Because of the well-known high zinc content of the human prostate (*2*), we also investigated the possible use of radiozinc as an agent for scintigraphic visualization of this gland. Our attempts failed and we did not report these negative results feeling that they were of little interest to most clinicians. At the present time, we consider that our results may be complementary to those of Chisholm, et al and may emphasize how disappointing this field of nuclear medicine is.

We used ^{69m}Zn, which has a physical half-life of 13.8 hr and a 440-keV gamma ray emission, allowing us to use the scintillation camera for visualiza-

tion. Zinc-69m was delivered as a sterile isotonic solution of zinc chloride containing a sizable quantity of ^{65}Zn (17.5% of the total radioactivity of the solution at the time of injection).

Three men with biopsy-proven prostatic adenocarcinomas, clinical Stage IV according to the Veterans Administration Cooperative Urological Research Group classification (*3*), were studied as well as three men with benign prostatic hypertrophy and disseminated lung cancer. A 330–450-μCi dose of ^{69m}Zn was injected by the intravenous route in the patients suffering from prostatic cancer while a 150-μCi dose was given by the same route to the patients with benign prostatic hypertrophy.

Several scintiphotos of the lower abdominal and pelvic regions were taken during the first hour after the isotope injection. The images were simultaneously recorded on a videotape system and examined after usual data processing. Rectilinear scintigrams were performed 1, 2, 3, and 20 hr after the injection.

Unfortunately none of the techniques used provided a distinct image of the enlarged prostatic gland. No clearly delineated prostatic outline could be seen on the scintillation camera pictures or on the color-dot and photoscintigrams. In one patient, however, with a very large prostatic malignant tumor, the scintillation camera pictures showed a small concentration of radiozinc in the prostatic area 20 min after the injection of the isotope. Nevertheless this image was less contrasted than the picture shown in Chisholm's paper. In each of the six patients, however, scintillation camera pictures disclosed a clearcut image of the liver as soon as 10 min after the radiozinc injection.

One of our patients with disseminated prostatic cancer survived for more than 1 year. Since he had received, due to the contamination of the ^{69m}Zn solution, about 50 μCi of ^{65}Zn, an isotope with a physical half-life of 245 days, it was possible to perform 1 year after the injection an investigation in a whole-body counter (WBC) fitted out with four detectors. Two profile scans were made simultaneously in the WBC, using two 4 $\times$ 4.75-in. crystals fitted out with a slit-collimator. A 176-keV wide window was centered on the ^{65}Zn peak (1.114 MeV). The first profile resulting from measurements along the body midline allowed scanning of the prostate, pancreas, and part of the liver while the second profile obtained from measurements along the right midclavicular line (at 15 cm from the midline) allowed scanning of the major part of the liver. As shown in Fig. 1, a rather high basal activity is recorded on both profiles, the maximum of the activity being located in the liver area (arrows). Nevertheless, Fig. 1A shows a small peak of activity in the prostatic area (double arrows). This suggests a rather slow turnover of radiozinc in the prostate. One year after the isotope injection, the absolute activity of the prostate compared with that of the surrounding organs remains too small to obtain a clear-cut image of the gland.

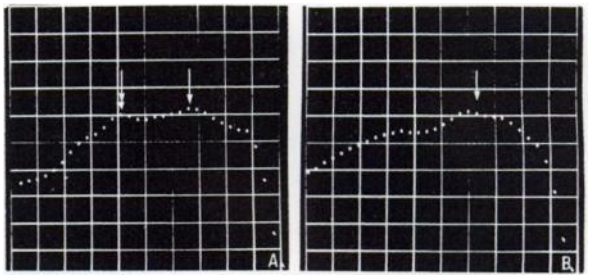

FIG. 1. Sagittal profile scans obtained in whole-body counter (WBC). (A) Profile recorded on midline with single arrow indicating hepatic area and double arrow indicating prostatic areas. (B) Profile recorded 15 cm to right of midline with arrow indicating hepatic area.

Finally, the results of Chisholm, et al as well as our data make us wonder whether the previously published in vivo prostatic scintigrams (*4*) were not obtained after surgical removal of the gland. We suggest that more specific markers, like those proposed by Szendröi, et al (*5*) should be tested for prostatic scintigraphy instead of further studies on other zinc radioisotopes even in other chemical forms.

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THE AUTHOR'S REPLY

Dr. Frühling's comments interested us since they confirm our view that prostate scanning with radioactive zinc chloride has no clinical value. The search for more specific markers by our group has been disappointing; we were unable to reproduce the results reported by Szendröi, et al (*5*). A report on our studies with radioactive iodine-labeled estrogens as prostate-scanning agents has been accepted for publication (*6*).

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