dose, probably should be the method of choice for the majority of patients referred for such studies. However, because of the relatively early elution rate of technetium from the red cell, this method of red cell mass determination probably should not be used in patients who can be predicted to have delayed mixing times, i.e., patients who do not have complete mixing of the labeled, infused cells by 30 min postinjection (patients with markedly severe polycythemia and giant splenomegaly).

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^{203}Pb: A POTENTIAL RADIONUCLIDE FOR SKELETAL IMAGING

The metabolism of lead is well known to be similar to calcium and therefore is a bone seeker. However, no attempt has been made so far to use radioactive lead isotopes for bone imaging. The radionuclide ^{203}Pb decays completely by electron capture to stable ^{203}Tl with a half-life of 52 hr (*1*). The primary radiations in the decay are 280-keV gamma rays (80%) and thallium K x-rays (90%) with an average energy of about 75 keV. The carrier-free ^{203}Pb-acetate is obtained (from New England Nuclear Corp.) at a moderate cost with a radiometric purity greater than 99%. About 800 μCi of this solution has been injected intravenously in an adult rabbit. A whole-body image, shown in Fig. 1, has been obtained with a scintillation camera (Nuclear-Chicago Pho/Gamma HP) in three exposures with 280-keV gamma rays.

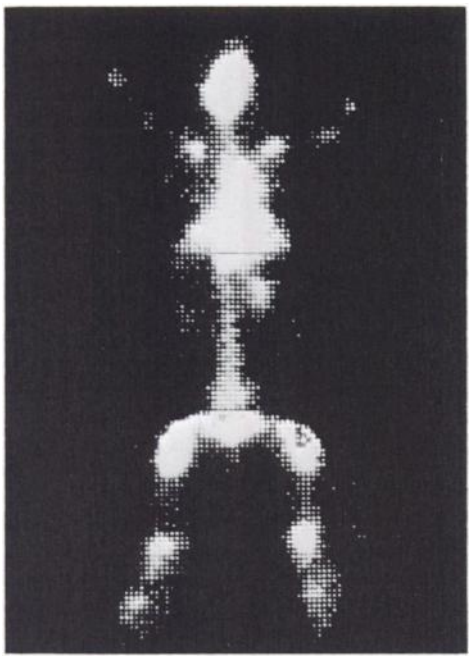

FIG. 1. Whole-body posterior image of rabbit taken 3 days after intravenous administration of 800 μCi of ^{203}Pb-acetate. Localization in skeleton can be noted as well as some residual activity in liver and kidneys.

The radiation dose from 100 μCi of ^{203}Pb to the whole-body and skeleton is estimated to be 0.03 and 0.06 rad, respectively (details of these calculations and the biological distribution in animals will be presented in later publications). The activity in the liver and the kidneys may be reduced by using chelates with intermediate stability constants (for example HEDTA) as suggested by O'Mara and Subramanian (*2*). The convenient shelf-life of 2.2 days, relatively low radiation dose to the patient, and the ready availability of this radionuclide makes it interesting to consider for bone studies.

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ACKNOWLEDGMENTS

This work is supported by the American Cancer Society Institutional Research Grant IN-28M.

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EFFECT OF INHIBITOR CONCENTRATION ON RADIOIMMUNOASSAY OF PLASMA RENIN ACTIVITY

We refer to the article by Chervu, et al (*1*) on the "Determination of plasma renin activity by radioimmunoassay: comparison of results from two commercial kits with bioassay" and note with interest that the authors used 10 μl of the inhibitor Dimercaprol for the Schwarz-Mann Kit even though the amount recommended was 2 μl. We are in the process of conducting trials with a similar kit manufactured by SORIN. During the trial, SORIN changed the constituents of their kit, the main difference being an increase from 2 to 6 μl in the amount of Dimercaprol used. We compared results using both

TABLE 1. EFFECT OF INHIBITOR CONCENTRATION ON RADIOIMMUNOASSAY OF PLASMA RENIN ACTIVITY

Amount of Dimercaprol (μl)	ng angiotensin I/ml/hr									
6	1.15	0.42	0.83	1.10	0.95	0.78	0.17	0.95	0.84	0.16
2	0.49	0.14	0.33	0.34	0.43	0.31	0.10	0.56	0.46	0.11

Assay ratio 6 μl : 2 μl (±s.d.) = 2.24 ± 0.58

kits and these are shown in Table 1. All samples were measured in triplicate, and the repeatability was ±2%.

The most probable explanation for the difference is that the amount of Dimercaprol recommended in the earlier SORIN kit did not completely inhibit the enzymic degradation of angiotension I during the plasma incubation at 37°C. The same problem could be inherent in the Schwarz-Mann kit if their recommended amount of Dimercaprol is used. This observation means that earlier reported results based on this assay require critical reappraisal.

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THE AUTHORS' REPLY

We have read with interest the letter from Hutchinson, et al on the effect of inhibitor concentration on radioimmunoassay of plasma renin activity. We have no experience with the SORIN kit and as such we are not in a position to comment on the large observed variation of renin activity with the change in Dimercaprol volume employed. Our initial experiments using the Squibb kit have been carried out with varying amounts of Dimercaprol (2 μl–10 μl), and these gave renin activity values which agreed closely. The wide variation indicated in the above communication was not noted with this kit. We have finally chosen the volume of 10 μl of Dimercaprol for accuracy in pipetting using both kits. Using the procedure outlined in our study we obtain highly reproducible renin activity values. We certainly agree that any commercial kit must be carefully tested for quality control and reproducibility before offering the results for general clinical use.

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ON FAILURE TO IMPROVE OBSERVER PERFORMANCE WITH SCAN SMOOTHING: A REBUTTAL

A recent paper by Kuhl, et al (*1*) reported the authors' study of detection performance by human observers viewing unprocessed and smoothed scan data. Although we agree with the authors' statement that human observer performance must be the real test of digital scan image manipulation, we question the applicability of their method of data analysis to their experimental situation and suggest that the negative conclusion reached may be due, at least in part, to this analysis rather than to any failure of scan smoothing in improving lesion detectability.

In this note we discuss the underlying assumptions implicit in the method of data analysis used by Kuhl, et al, and argue that these assumptions are not satisfied, even approximately, in the authors' experimental situation. We also propose an alternative, although related, method of analysis more appropriate to the authors' experimental situation and show that, on this basis of this analysis, the authors' data indeed suggest increased lesion detectability after some scan smoothing—a conclusion opposite to that reached by Kuhl, et al.

The authors' Fig. 3 shows that a result of smoothing the scans was an increase in true-positive detec-