tion has been confirmed in a recent study by Weber, et al (*11*).

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EFFECTS OF TIN ON PERTECHNETATE DISTRIBUTION

A specifically abnormal imaging pattern has been observed consistently when ^{99m}Tc-pertechnetate brain imaging followed ^{99m}Tc-stannous pyrophosphate imaging using the Mallinckrodt TechneScan PYP kit. The abnormal brain pattern shows disproportionately increased activity in the vascular structures such as the superior sagittal sinus, transverse sinus, and the region of the choroid plexi, in spite of potassium perchlorate "blocking" prior to isotope injection. The abnormal torso pattern shows increased activity in the kidneys, liver, and the vascular structures of heart, aorta, and peripheral vessels such as the iliacs, femorals, and subclavians. We are not visualizing the usual pertechnetate activity that should be present in the gastric mucosa and salivary glands.

One recent brain scan preceding a bone scan showed a large "hot" right parietal metastasis from a bronchogenic carcinoma. When the pertechnetate brain scan was repeated following an interim bone scan, the positive cerebral metastasis became nondetectable.

During pertechnetate imaging that follows bone imaging, in vitro testing shows a 30-fold increase of technetium activity in the erythrocytes compared to plasma. These findings strongly suggest in vivo intracellular reduction of technetium pertechnetate with permanent labeling to large intracellular molecules. These data in humans correlate with McRae, et al (*1*) and Steigman, et al (*2*) and suggest the stannous content in the Mallinckrodt TechneScan PYP kit may be unacceptably high. Closer scrutiny of the stannous ion content in bone-imaging kits as well as further research on the toxicity or metabolic effects of Sn(II) appear to be necessary.

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THE AUTHOR'S REPLY

Chandler and Shuck point out an abnormal imaging pattern when ^{99m}Tc-pertechnetate brain imaging follows bone imaging using the Mallinckrodt TechneScan PYP kit. This kit is labeled as containing 15.4 mg stannous pyrophosphate and calculation implies a Sn(II) content of 8.94 mg. Assuming that a 70-kg man receives one-fifth the contents of the vial of prepared pyrophosphate, the dose of tin approximates 0.02 mg Sn(II)/kg which is included in the dose response curve shown in Fig. 3 of a paper by McRae, et al (*1*). Very definite changes in pertechnetate metabolism are to be expected in patients previously studied with this agent.

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