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THE AUTHOR'S REPLY

Szymendera and Radwan correctly point out that measurement of intestinal absorption by the isotopic ratio method leads to overestimate, particularly when the material studied has a short half-life. As stated in my paper, "This technique causes overestimate of absorption percentage because of the rapid early disposal of a portion of the intravenous dose. The ratio technique was adopted here because of its simplicity. It was felt that the systematic error introduced by this approach is small and should not affect comparative studies."

The elegant analysis which Szymendera and Radwan have applied to their data certainly improves the accuracy of estimate of intestinal absorption. However, the method used in my paper is much less cumbersome, does not require the use of a digital computer, and, I believe, adequately demonstrates the fact that intestinal absorption of pertechnetate varies markedly in extent and timing.

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REDUCTION OF THE EFFECTS OF SCATTERED RADIATION

In their article on the reduction of the effects of scattered radiation on a sodium iodide imaging system (*J Nucl Med* 14: 67–72, 1973) Bloch and Saunders state that they obtain improvement of the modulation transfer function (MTF) of a rectilinear scanner and a gamma camera by simply subtracting the number of counts recorded in the Compton energy interval 91–102 keV from the number of events simultaneously recorded under the photopeak 125–170 keV.

Improvement of the MTF may be expected when the ratio between the number of unscattered photons and the number of scattered photons in the observed energy interval 125–170 keV is changed in favor of the unscattered photons. This ratio does not change by simply subtracting the gross counting rate in the energy interval 91–102 keV from the gross counting rate in the interval 125–170 keV. Therefore the results of Bloch and Saunders are difficult to understand.

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THE AUTHORS' REPLY

There is, we think, a simple reason why the scatter subtraction technique improves the spatial resolution. The figure (right) shows the counting rate as a function of position for a line source of ^{99m}Tc surrounded with scattering material, separated into a "geometrical" component due to gamma rays emitted within the collimator field of view and a "scatter" component due to scattered photons recorded within the photopeak window 125–170 keV. At distance x_1 from the line source most of the measured events are due to scattered photons. Our calculations

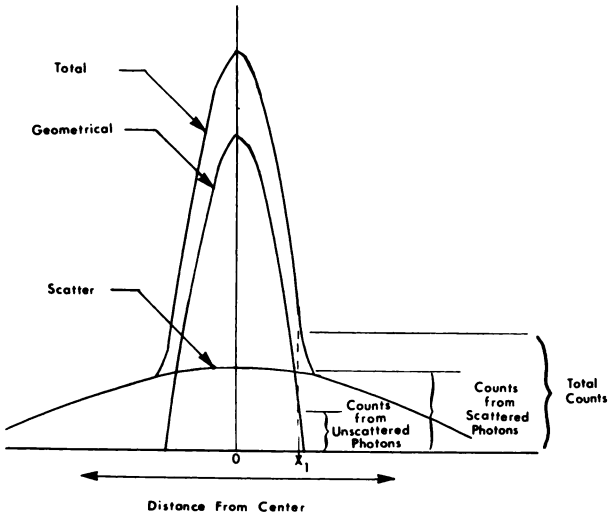

FIG. 1. Measured counting rate of line source separated into "geometrical" component due to gamma rays emitted within collimator field of view and "scatter" component due to scatter photons recorded within photopeak.