O. Bone and Joints

The Clinical Usefulness of a 4000 Hole Di/Con Diverging Collimator
—for Bone Scintigraphy using $^{99m}$Tc-Diphosphonate—

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We have designed a 4000 hole Di/Con diverging collimator, and skeletal scintigraphy with this proved to be valuable procedure. Ten adult patients were given 2 mCi/10 kg of $^{99m}$Tc-diphosphonate intravenously. Images were obtained 3 hr post injection using a Toshiba GCA-102 scintillation camera.

Using the 4000 hole Di/Con diverging collimator images of the pelvis, lumber spine, thorax, and skull were taken. Both anterior and posterior views were performed. Next using a 1200 hole diverging collimator a posterior view of the thorax was obtained. In addition, the suspected lesion was imaged with a 4000 hole parallel collimator.

In this study, the mean study time was reduced from 60 min using the 1200 hole diverging collimator to 30 min using the 4000 hole Di/Con diverging collimator, and the images with both diverging collimators were similar. However, the distortion was remarkably with the 4000 hole Di/Con diverging collimator.

Spinous and transverse processes of individual vertebrae were clearly seen with the 4000 hole parallel collimator, but not with both diverging collimators.

We conclude that the 4000 hole Di/Con diverging collimator is useful for bone survey. If a more detailed view of suspicious area is required, a high resolution collimator should be necessary.

Clinical Uses of the Positron Camera on Bones

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We wish to report the clinical uses of the Positron Camera with focused collimeter, which was devised by Okano and his associates some years ago. We attempted bone scanning of $^{18}$F by employing this camera. The Positron Camera we constructed for this attempt consisted of an image detector with Pho-$\gamma$-camera (Hp type) produced by the Nuclear Chicago Company, and a coincidence detector with