

The rest of twelve cases (33.3%) was diagnosed far better by  $^{99m}\text{Tc}$ -labeled pyrophosphate scan than by radiography.

In seventeen cases (47.2%), the sites of abnormal accumulation of radioactivity were observed in the same regions of bones on radiography plus the other sites where no abnormal shadow was found in X-ray study.

Urinary excretion rate of  $^{99m}\text{Tc}$ -labeled pyrophosphate was classified according to the staging of the bone scan.

In four cases with generally disseminated metastases (stage 4), urinary excretion rates were indicated lower values, 7.9, 3.8, 1.4,

0.7% respectively.

In those patients, no visualization of kidney with  $^{99m}\text{Tc}$ -labeled pyrophosphate was found.

In summary, bone scanning of  $^{99m}\text{Tc}$ -labeled pyrophosphate is more superior for the detection of metastasis to X-ray bone survey.

This suggests bone scan is suitable for early detection as well as screening of bone metastasis of prostatic cancer.

Five hour urinary excretion test of  $^{99m}\text{Tc}$ -pyrophosphate was found to be of value to differentiate cases with multiple disseminated metastasis from cases with limited metastasis.

### **Bone Scintiscan with Tc-99m Pyrophosphate** —Availability of RI Data Processing System—

Y. ONO, K. ASAKURA, O. ITO, M. UJIIE, M. SUGAHARA, H. HAYASE and I. MOMOSE  
*Department of Radiology, School of Medicine, Yokohama City University.*

This report deals with the availability of RI data processing system (JAC-120m), in order to determine that slight difference of RI activity has pathological significant in various bone diseases.

The materials studied in this report consist of the cases with metastatic bone lesion, fractures of the facial bones and with joint diseases. In operation of RI data processing system, the following factors were combined, namely addition, subtraction, multiplication, division, logarithm, square, cut off, smoothing, rotation and region of interest (ROI), and various conditions were studied. In observation of the processed data, the following displays were

used, namely profile, oblique, contour map, typeout map and routine.

Valuable procedures comparing with scintiphotos were processing constant subtraction, smoothing and ROI. In comparison of ROI pointed at symmetrical region in bilateral maxillar bones, there noted 2 to 16 per cent of difference in normally whereas 40 to 700 per cent of difference in ROI of pathological lesion was observed. In comparison of ROI pointed at vertebral bodies without metastasis, there noted only 2 to 10 per cent of difference whereas at those with metastasis 40 to 36 per cent of difference was observed.