

detecting field, which as a matter of course gives good spatial resolution, several improvements were made based on the results of digital simulations on the  $^{133}\text{Xe}$  cerebral clearance curves as follows: The initial height of the curve was determined by extrapolation with a monoexponential function fitting the initial parts of the curve to eliminate a shunt

peak appearing on the large arteries; and the standard error of calculated rCBF caused by the statistical fluctuations was evaluated from the initial counts to estimate a possible error due to low count rates. All the results outlined above were designed to print or to display on a CRT corresponding to the location of the 16 detectors.

## **A Heart RI Angiography by the Nuclear Medicine Data Processing System in our Hospital**

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### **The purpose of the study**

The nuclear medicine data processing system is constructed of JAC 120M (Aloka), a monitorscope with a light pen and a consol display with a keyboard possessing a hardcopy unit. As a scinticamera, GCA 102 (Toshiba) is used with 20,000 H collimator for  $^{99\text{m}}\text{Tc}$  use.

By this method some interesting heart RI angiographies were reported.

### **The methods used**

A dose of 10 mCi  $^{99\text{m}}\text{Tc}$  was injected from cubital vein using the concentrated bolus injection technique.

The consol display with a keyboard is used as the center consol of the man machine communication medium. As RI angiographic image, it displays gray graphic modes, then those image are instantly copied with the hard copy.

The oscilloscope is used as the monitor display. It makes cine action for multiframes (start, stop, forward and backward).

Inflow and outflow of RI in heart are re-

corded by the collection of multiframe matrix image at every 0.5 second. Each frame size is  $32 \times 32$  and this size can be converted into  $64 \times 64$  as occasion demands.

The region of interest (ROI) are designated by a light pen or lead buttons of digiswitches. As far as 8 regions can be designated simultaneously. By the input of the consol, the total of the counts in the all elements of the designated regions is printed on the consol. In case of multiframe, changes of totals of counts are also described as graphs.

### **The results**

The collection of 16 patients data were exact and easy. The images of graphic mode of patient data were excellent, and were copied instantly with hard copy. Superior vena cava, right antrum, right ventricle and beginning part of pulmonary arterium in the right heart and left antrum, left ventricle and thoracic aorta in the left heart were designated, then each ROI obtained easily as tables and curves.