chronic pancreatitis.

The study suggests the usefulness of the pancreas scintigraphy as screening procedure in detecting the carcinoma of the pancreas of removable stage.

Kinetic Studies of the Pancreas by Digital Computer Processing

M. Matsuo, T. Maeda, Y. Nakanishi and T. Katsura

Department of Radiology, Kobe University School of Medicine, Kobe

Evaluation of the pancreatic function is important for the diagnosis and was performed in this study.

The Uptake curve of ^{75}Se-Selenomethionine for the pancreas is studied through 75 patients, including 10 cases with normal pancreases, 9 with histologically confirmed pancreas carcinoma, 40 with pancreatitis and 4 with gall stone in the common bile duct.

Cases with pancreatitis were divided into three groups for convenience. Group 1 is consisted of the chronic pancreatitis, based on the criteria by the Committee of the pancreatic diseases. Group 2 includes acute, relapsing or chronic pancreatitis which marked high level of serum or urine amylase and was diagnosed from signs and symptoms clinically. Group 3 is the clinically diagnosed pancreatitis.

50 μCi of ^{198}Au-colloid was injected intravenously without premedication. More than 30 minutes after the Au-colloid injection, 250 μCi of ^{75}Se-Selenomethionine was injected intravenously.

Information from the γ-camera, with the detector inclined at 15 degrees and fitted with a 1000 holes collimator, was recorded on the videotape as digitalized memory.

The Uptake curve in the Region of Interest on the pancreas head, body and tail was represented as the histogram with the accumulation coefficient (Kc).

In case of group 1 and group 2 pancreatitis and also in case of gall stone in the common bile duct, the Kc value showed an apparant low level compared with normal cases, and that was approved statistically.

In case of pancreas carcinoma, low level of the Kc values was noticed on the region where carcinomatous change directly invaded, and however a moderately low number of Kc values were noted in other portions.

Computer processing was performed for each Uptake curve by digital computer, that is, each Uptake curve was processed by Low Pass Filters with various transfer functions.

The following was concluded;

1) The Kc value was proved to be a useful indicator of pancreatic function.

2) Calculating the Kc values or other indicators from the outputs of the Low Pass Filter is more objective and is the one step to the computer diagnosis.