9

ESTIMATION OF LIVER BLOOD FLOW USING SPECTRUM ANALYSIS. S.Seo. Minamimachi Clinic, Furukawa. Y.Abe, K.Yamada, S.Yoshioka, T.Matsuzawa. Tohoku Univ., Sendai.

Using spectrum analysis (Maximum entropy methods; MEM), we separated portal and hepatic arterial components from the time activity curve (TAC) obtained by RI angiography of Tc-phytate. We set region of interest on the right lobe of the liver and the kidney. We set the short and long section to the differentiated TAC of the liver and TAC of the kidney. We analysed these sections using MEM. The fast cycle (FC) obtained from the short section was thought to be related to the mode of transit time (MTT) of hepatic artery. The slow cycle (SC) obtained from the long section was thought to be related to the MTT of portal vein. FC and SC were calculated on the liver and kidney.

In clinically, we compared the normal liver with liver cirrhosis. In normal, the liver to kidney ratio of FC and SC were 0.90±0.14 and 1.08±0.11, respectively. In cirrhosis, the liver to kidney ratio of FC anc SC were 0.66±0.16 and 1.65±0.35, respectively.

10

VENTILATION STUDY USING STABLE XENON GAS AND ITS COMPARISON WITH SCINTIGRAPHY

T. Hamada, K. Sugimura, I. Nabeshima, K. Kanegawa, S. Nishiyama and S. Kimura
Kobe Univ. School of Medicine, Kobe

Stable xenon gas was potential contrast agents. Fundamental study using DAR 100 - digital subtraction system and Scintipac 2400 - computer for storage and analysis of images showed that 70% xenon gas layer of at least 5mm thickness in a phantom was recognized by means of subtraction from a same phantom containing room air.

We applied stable xenon gas as contrast agents to ventilation studies in 15 case of lung cancer causing stenose of proximal bronchi. 70% xenon and 30% oxygen gas of 1.5 ℓ was inspired and X-ray images before and after inspiration were subtracted by DAR 100.

In practice we obtained continuous live images for 15 seconds to pick up better subtraction images. These images presented distribution of the gas in the lung and the results were similar to 81-m Kr scintigraphies in all case but one showed retension of the gas.

This study may be performed at any time without any particular adverse effect and had better spatial resolution than scintigraphy.

11

CLINICAL EVALUATION OF A COMPUTER-ASSISTED RECOMPOSITION RADIONUCLIDE VENOGRAPHY IN PATIENTS WITH SUPERIOR VENE CAVA DISEASE. J.Ishimura, M.Suehiro, K.Tachibana, M.Murakami, R.Kawata, H.Narita and M.Fukuchi. Division of Nuclear Medicine, RI Center, Hyogo College of Medicine, Nishinomiya, Hyogo.

Radionuclide venography are fast and simple method of detecting major vascular channel patency. This paper describes a clinical application and evaluation of computer-assisted recomposition radionuclide venography for diagnosis of superior vena cava disease. The instruments used was a gamma camera with low energy high resolution collimator and a computer on-line system. Nine patients with suspected disorders of superior vena cava was studied in this series. Seven mCi of Tc-99m-HSA was given intravenously by bolus injection. The left median cubital vein was used for injection at first series and the data were collected at one second interval on the disc of the computer. Second series, the same dose of Tc-99m-HSA was injected into right median cubital vein and the data were collected with same procedure. The systemic computer-assisted radionuclide venogram of the chest was made from stored data. The localization of the venous obstruction and collateral pathways were clearly visualized in patients with superior vena cava syndrome. In addition, it was useful for clinical follow-up studies after treatments.

This findings suggested that the our method was useful for clinical evaluation of patients with superior vena cava disease.

12

K.Masuhara, K.Shinozaki, Y.Tanaka, K.Kashiwada, T.Kobayashi, D.Tsujino, K.Someya, T.Takahashi, A.Satoh, T.Sakaki, Y.Sasaki*. St. Marianna University School of Medicine, Kawasaki, and *Toho University School of Medicine, Tokyo