^{99m}Tc Superior Vena Cavography

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A small volume (1-5ml) of Tc99m pertechnetate containing 5-10mCi of activity was injected intravenuously in 45 patients with obstruction of the superior vena cava and 47 normal subjects. Serial scintiphotos were obtained by the use of a polaroid camera and a 35mm time lapse camera.

Vena cavographic findings in this series are summarized as follows:

(1) There are a few normal variants in the superior vena caval route. The narrowing of theaxillary vein and the filling defect at the intrapericardiac portion of the superior vena cava were often observed.

(2) In the anterior view, the internal mammary and lateral thoracic routes were well visualized, while the azygos and vertebral routes were not. These two routes were visualized in the posterior view, overlapping one another.

(3) Tc-99m superior vena caviyrams showed well lung perfusion.

(4) Mean transit time (from the antecubital vein to the right heart) in 47 subjects with no clinical and laboratory evidence of chest disease was studied.

(5) A series of 34 patients with superior vena caval syndrome was studied; in all the patients the Tc-99m cavograms disclosed obstructive lesions distinctly.

(6) In 11 patients without superior vena caval syndrome, obstructive lesions were discovered by the Tc-99m cavograms.

(7) In a study of 17 patients with complete obstruction of the superior vena cava, the the delay of the transit time was remarkable in 9 patients with severe superior vena caval syndrome due to acute obstruction and was moderate in 8 patients with mild syndrome due to chronic obstruction.

(8) The heart, main pulmonary artery and blood flow of the lung which were not visualized on contract medium cavograms in the patients with superior vena caval obstruction, were well demonstrated on serial scintiphotos in all the patients. It is an advantage of the radioisotope image.

Measurement of Distribution of Cardiac Output in Dogs Using RI-Labelled Microsphere

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Authors investigated the distribution of cardiac output to various organs under normal and shock state in dogs using ^{51}Cr and ^{125}I labelled microsphere (diameter $50\pm5\mu$). Furthermore cardiac output was measured by the dye dilution method and organ bolod flow was calculated. The first microsphere was injected into the left auricle after $PaCo_2$ was maintained between 30 and 40 mm Hg and the second one was injected after 30 min or 120 min duration of hemonhagic shock (40 mm Hg of mean aortic pressure). After dogs were killed, all organs were dissected, weighed, incinerated at 150°C over 24 hr, and then minced, put into counting tubesin 2 cm depth. Radioactivity of organs was measured using well-type scintillation counter and each radioactivity of ^{51}Cr and ^{125}I was separated according to its energy specturm. Microsphere injection produced no measurable circulatory changes and the microspheres were almost completely extracted during the first transit through capillary beds.