

526

SCHEMATIC REPRESENTATION OF COLLATERAL PATHWAYS IN SUPERIOR VENA CAVAL OBSTRUCTION SEEN ON RADIONUCLIDE SUPERIOR VENACAVOGRAM (PART I). T.Muramatsu, M.Mashimo, K.Suzuki, M.Ide, T.Miyamae and Y.Dohi. Saitama Medical School, Saitama.

The purpose of this study is to illustrate the various collateral pathways in occlusion of superior vena caval obstruction and to discuss the frequency. Radionuclide superior venacavogram was performed in 45 patients with occlusion of the superior vena cava or its major tributaries. The occluded areas were classified into 5 groups (Group I; subclavian v. II; brachiocephalic v. III; SVC above the entrance of azygos v. IV; the entrance of azygos v. V; SVC below the entrance of azygos v.). In this report we confine our attention to the Group I (10 occlusions) and II (37 occlusions). Lateral thoracic-azygos system anastomoses (60%) were mainly visualized in Group I. Jugular venous arch anastomoses between rt. and lt. external jugular v. (47%) and lateral thoracic-internal thoracic anastomoses (39%) were mainly visualized in Group II.

527

QUANTITATIVE EVALUATION OF THE BLOOD FLOW IN SUPERIOR VENA CAVA BY RI-VENOGRAPHY. M.Suehiro, J.Ishimura, H.Kitani, Y.Maeda, K.Tachibana and M.Fukuchi. Division of Nuclear Medicine, RI center, Hyogo College of Medicine, Nishinomiya, Hyogo.

Radionuclide venography has been used to detect obstructions in the superior vena caval system. This paper describes a clinical evaluation of the quantitative analysis of the blood flow in the superior vena cava using a gamma camera with computer on-line system. Eighteen patients with or without the SVC syndrome were studied in this series. Seven mCi of Tc-99m-HSA were given by bolus injection into each cubital vein and every 1 -sec. data from the detector was stored on the disk. The areas over bi-lateral subclavicular veins and the heart were flagged, and curves over these areas were generated using the computer. Peak-to-peak transit time (PTT) was measured from these curves. The maximum velocity of inflow and outflow were measured by the differentiated curve over the subclavicular vein. The flow index (FI) was also calculated by dividing the maximum velocity of outflow by inflow. In 10 patients without the SVC syndrome, PTT was 2.8 ± 1.2 sec. and FI was $71.9 \pm 7.3\%$. In 8 patients with the SVC syndrome, PTT was 8.9 ± 6.0 sec., and in 5 patients who had the facial edema, FI was $53.6 \pm 11.4\%$. These findings indicate that the measurement of PTT and FI is useful in the clinical evaluation of the SVC syndrome.

528

2 RADIONUCLIDES MACROAUTORADIOGRAPHY.

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Macroautoradiography, using both Tc99mMAA and Ga67 (Tl201), showed relations between local focus and local blood flow. The distribution of Tc99mMAA (pinpoint shadows) was not uniformity. It was variety with spotted pattern or with semilunar pattern. These various patterns showed us local slow or fast blood flow in order that Tc99mMAA (size 20µm, s.g. 1.041) began to moved at 30cm/minute blood flow speed.

TECHNICAL CONDITION

24 hour before operation Ga67 citrate (Tl201Cl) 1.5mCi was injected into vein, immediately before operation Tc99mMAA 5mCi was injected into aorta through continuous intraarterial infusion chemotherapy catheter (see 1,2,3). Material was sliced 3~5mm in thickness, and covered by thin layer vinyl film, and put between X-P film (FUJI RX SAFETY). Contact time 120~240 hours in frozen room. Develop and fixation. Observation.

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529

EVALUATION OF MUSCLE BLOOD FLOW BEFORE AND AFTER SURGICAL THERAPY FOR ISCHEMIC DISEASE OF THE LEG USING Xe-133 SINGLE DOSE MULTI-STEP METHOD (SDMM). H.Bunko, H.Seto, J.Taki, I.Nambu, Y.Shire, N.Tonami, K.Hisada. Kanazawa University Hospital, Kanazawa

Xe-133 single dose multi-step method (SDMM) has been developed and reported by us. Purpose of this study was the evaluation of MBF before and after surgical therapy (Tx) in patients with ischemic disease of the leg using SDMM. Bilateral adductor magnus muscle (AMM) and gastrocnemius muscle (GCM) in 26 patients (pts) (25 ASO and 1 TAO) were evaluated. 14 pts were studied before and after Tx and 12 pts were studied only after Tx. In SDMM, after i.m. injection of 1 mCi of Xe-133 every 5 sec data were obtained for 2.5 min. immediately before and after 3 min. of mild stepping exercise (Ex). MBF during Ex became normal in 30/36 diseased (D) muscle after Tx. MBF in D leg was significantly lower than normal leg (mean MBF: 4.36 ± 3.77 (AMM) and 8.43 ± 7.83 (GCM) ml/min/100g) before Tx, which did not show significant difference (12.38 ± 8.47 (AMM) and 13.28 ± 5.94 (GCM)) after Tx. In conclusion, (1) MBF during Ex in D leg increased significantly after Tx, (2) MBF at rest increased only in D thigh after Tx, (3) mild Ex was suitable for the evaluation of the ill patients, and (4) SDMM was simple and useful method for the evaluation of MBF before and after Tx.