

54.3 and 72.4 ml./min./100 g) were significantly higher than those of the controls. These MBF increases were found to be mainly due to a high flow rate for Component 1. Furthermore, a series of scintiphotos following the ^{133}Xe injection showed increased MBF in or around the gan-

grenous and ulcerative lesions at an early phase which corresponded to Component 1. These findings suggested a compensatory increase in MBF in or around the gangrenous and ulcerative lesions at a healing stage.

Studies on Regional Blood Flow of Delayed Deltopectoral Flap By Method of Local Clearance of Xenon-133

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The studies on the regional blood flow of delayed deltopectoral flaps using the radioactive inert gas Xenon-133 in 32 patients are reported.

Method:

Xenon-133 dissolved in saline was directly injected to the cutaneous tissue of the deltoid region. The clearance curve was recorded continuously by collimated scintillation detector for 30 minutes immediately after the injection.

Results:

The clearance curves replotted semilogarithmi-

cally consisted of two exponential components. The clearance rate of the first component showed skin blood flow in the region.

A close correlation between the clearance rate and the age of preoperative patients was found.

The regional blood flow of lining deltopectoral flap was observed higher than that of U-shaped undermining deltopectoral flap.

Reconstructive surgery should be carefully carried out in patients with low clearance rate.

Determination of Muscle Blood Flow of Hemiplegic Patients Due to Cerebral Vascular Disorders

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Using ^{133}Xe -clearance method, muscle blood flow was measured to survey the state of the peripheral

circulation of the upper extremities of hemiplegic patients at several stages of rehabilitation.

The subjects are 33 hemiplegic patients from 58 to 75 years of age and 10 controls from 63 to 91 years of age.

(Method)

Using renogram apparatus (Shimazu) 0.2 ml (200 mCi) of ^{133}Xe -saline solution was injected in lateral brachioradialis muscles using gauge #26 needle, and ^{133}Xe -clearance curve was obtained during ischemic reactive hyperemia for 6 minutes.

As an index of the muscle blood flow maximal muscle blood flow was estimated from the clearance curve using Lassen's method after subtraction of the 2nd phase from the rapid 1st phase.

(Results and Conclusion)

1. Muscle blood flow of paretic arms was lower than that of non-paretic arms.
2. Peripheral muscle blood flow increased gradually during rehabilitation course in paretic arms, but in non-paretic arms it remained unchanged for long period.
3. When compared with Brunnstrom recovery stage, improved Brunnstrom stage usually accompany increased peripheral muscle blood flow.

Therefore, this study clearly showed that muscle blood flow in hemiplegic patients is altered by the APL activity of patients.

The Determination of Blood Flow in Advanced Breast Cancer using Xe-133

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The purpose of this study is the determination of a therapeutic plan for advanced breast cancer using arterial route Xenon-133 clearance technique. The treatment is essentially palliative and surgery usually contraindicated in advanced breast cancer cases, from 3 to 4. If surgery is intended to be performed as a palliative treatment, the preoperative chemotherapy is useful to reduce the breast tumor and metastatic lymph nodes.

We have attempted to determine the blood flow throughout the chest wall around the advanced breast cancer. A total of 22 cases were made. Two polyethylene catheters were cannulated into the subclavian artery via the brachial artery, and into the internal thoracic artery via the superior epigastric artery respectively. The fine catheters were connected with a portable infusion apparatus.

After the injection of Xenon saline solution 1–2 mCi, the rapid sequential scintiphotograms were taken for 10 minutes and the regional blood flow was calculated using a Gamma camera (Toshiba).

The following results were obtained;

1. The Xenon perfusion area from the subclavian artery showed the anterior chest wall on the lateral side involving axillar lymph nodes, subclavian fossa and the tumor lesion.
2. The Xenon perfusion area from the internal thoracic artery showed the anterior chest wall on the median side involving parasternal lymph nodes and the tumor lesion.
3. Both perfusion areas overlapped in the nipple line somewhat laterally, and completely covered not only the tumor lesion but also the anterior chest wall and the related lymph nodes.