Preoperative and Postoperative Studies on the Lung Perfusion in Cardiac Diseases

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Quantitative Interpretation of the lung perfusion is useful to evaluate the effect of the surgery in patients with congenital and acquired heart diseases. Left-to-right ratio and upper-to-lower ratio were calculated on the posterior perfusion images using a minicomputer. Five normal cases and 98 cases with cardiac diseases before surgery and 57 cases after surgery were studied. Postoperative perfusion images of the patients were obtained just before leaving hospital.

In preoperative studies, 8 of 18 cases with MS showed higher upper-to-lower ratio. The ratio returned to normal range after surgery in 5 of cases with higher ratio. A decrease in upper-to-lower ratio was observed in 8 of 21 cases with VSD and 11 of 20 cases with ASD before surgery. The ratio did not return to normal range within 1 month after surgery. All of 5 cases with PDA showed lower upper-to-lower ratio before surgery which did not return to normal range within 3 weeks after surgery. Left-to-right ratio decreased in many cases with cardiac diseases but the ratio did not return to normal range after surgery.

A Study on the Estimation of “Pulmonary Blood Volume”, with Special Reference to the Significance of Peak to Peak Time in RCG.

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Pulmonary blood volume has been measured by analog simulation of radioangiocardiogram and so on. The significance of peak to peak time (PPT) in RCG for the estimation of “pulmonary blood volume” (“PBV”) was reinvestigated with use of RI angiocardiography. RI angiocardiography was performed in 22 patients with various cardiac diseases and 5 patients without cardiac diseases both in the left anterior oblique position and anteroposterior position. Radioisotope counts rate curves in the regions of interest such as RV, PA, LA, LV and whole area over the heart occupying mostly LV and RV, were recorded. The mean transit times (MTT) were measured in each dilution.