Comparative Investigation about Qualitative and Quantitative Findings of the Dilution Curves on RI Angiocardiography in Various Diseases

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RI dilution curves of several “area-of-interest (AOI)” of central circulatory system were obtained using a high resolution gammacamera with a video system and Tc-99 m-albumin. and the curves were investigated qualitatively through circulation times and curve patterns, while quantitatively through cardiac output, regurgitant fraction and shunt rate. As the subject of the study, 16 adult controls, 5 child controls, 55 cases of various heart diseases and 29 cases of the others were chosen.

Comparison of the curve patterns in various diseases were performed about the ratio of the first-circulation peak high corrected by its dilution equilibrium of each AOI curve to of right ventricle, the shape of each first-circulation wave and the existence of abnormal wave indicating intracardiac shunt.

Central circulation times by means of “peak to peak” prolonged in valvular heart disease, and shortened in hyperthyroidism compared with control. And in the former, left atrium to ventricle time prolonged in MS but shortened in MIS or MI. Correlation between right to left ventricle and first- to re-circulation time was reliably estimated for the most part of various diseases although the relationship in stenotic or insufficient valvular heart disease was obscure.

The cardiac output of right ventricle rose in the cases of intracardiac shunt, hyperthyroidism and hypertensive heart disease, reduced in valvular and coronary heart disease compared with in adult control estimated to be 6.75 ± 0.58 l/min. The ratio of the cardiac output of left ventricle to of right was 0.98 ± 0.04 in control, but fairly lower in valvular heart disease.

Regurgitant fraction evaluated by a formula and shunt rate were calculated respectively in valvular heart disease and in the cases of intracardiac shunt.

Simple TV Analyzing System for Radioisotope Angiocardiography: Analyzing of Cardiac and Pulmonary Dilution Curves

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A simple system in use in our laboratory for two years, TV monitorphotomultiplier analyzing system (TPAS), has been developed for analyzing dynamic blood flow studies performed on the