

3) density: This was found from the following expression by using isosensitive scanning: $\text{Density} = a \cdot b / cd$; a = dot numbers in mass/cm², b = dot numbers in the area of the normal opposite hemisphere/cm², c = dot numbers in parietal portion/cm³, d = depth of mass (cm). It was proved that meningiomas, metastases and glioblastomas tend to be quite

dense, but low grade astrocytomas and A-V malformations show only faint uptake. Density of abnormal uptake may be helpful for the diagnosis of malignancy.

4) Margins and shape of the abnormal uptake: Morphological classification of scan images is available to a certain degree but sometimes too subjective.

Hemodynamic Study of Radiocardioccephalogram —Orthostatic Hypotension and Shy-Drager Syndrome—

N. YAMADA, N. IWAI, A. HIRAKAWA, K. OGINO and M. TAKAYASU

Department of Medicine, Kyoto University, Kyoto

M. KUWABARA

Automation Research Institute, Kyoto University, Kyoto

The postural changes in cardiac and cerebral hemodynamics of orthostatic hypotension have been studied.

The radiocardioccephalogram, obtained following intravenous RISA (40 μ Ci) injection and external computation method was simulated with curve fitting method by the analog-computer. Then the cardio-cerebral circulation values was calculated as previously reported.

The transference of posture was brought about by a manual tilt-up table. The problems related with postural changes in collimation condition were discussed.

A case of Shy-Drager syndrome, aged 47 man, having suffered from micturition disturbance, impotence, anhydrosis, cerebeller ataxia, micturition syncope and incontinence for three years have been examined. The hemodynamics were studied in supine position, head-up tilting 80° and supine again. Cardiac Index decreased excessively (-42%), heart rate unchanged and blood pressure decreased from 140/72 to 92/58 mmHg in head-up tilting. Central blood volume, that is pulmonary

blood volume plus total mean heart volume, diminished from 590 to 400 ml/m², and cerebral blood volume 83 to 65 ml, suggesting the increase of postural venous pooling. Calculated peripheral vascular resistance, involving cerebral vascular resistance, increased only so slightly that the blood pressure fall was not enough compensated. Cerebral blood flow fraction (CBF/systemic blood flow) was also decreased and CBF diminished from 55.5 to 27.7 ml/min/100gr (-50%), indicating a loss of autoregulation mechanism.

With replacement to supine position, central blood volume excessively increased to 850 ml/m², pulse rate fixed, mean ejection rate increased to 0.54(r) 0.47(l) and cardiac index and stroke index increased above normal limit (5.7 L/min/m², 88.8 ml/beat/m²). Blood pressure and CBF returned to previous values and CBFF nevertheless decreased from 9.5% to 7.8%.

According to these results, it seems that the orthostatic hypotension in Shy-Drager syndrome is probably due to multiple disturbances in circulatory control system.