A Trial to Evaluate Quantitative RI Cisternography Using Anger Camera

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The purpose of this paper is to evaluate the RI cisternography quantitatively. Thirty minutes after RI injection into the lumbar subarachnoid space, patients were fixed on supine position and RI counts were recorded with Anger camera tape-recorder at the spinal and cranial levels simultaneously for 30 minutes in posterio-anterior view. Playing back the records, the regions of interest (ROI) were decided in each levels with image scope. The changes of RI activity in each levels were displayed with digital ratemeter.

Almost straight line as a tendency on these changes was found. This slope is called as "flow rate" in this study for convenience. These "flow rates" were compared with the results of routine way in cisternography.

Nineteen patients in our department of neurosurgery were examined. In 7 patients whose cisternographies were normal, the "flow rates" as stated above were plus in each levels which related to grade of increase of RI activity. As an interesting findings, these "flow rates" were higher in cranial levels than in spinal levels. It is understood that this changes were physiological because the combination of a rigid skull and relative ly elastic spinal dura results in a considerable surge of fluid through the foramen magnum.

In 6 patients whose cisternographies were abnormal because of the appearance of RI activity in ventricular system, "flow rates" discrepancy as stated above between spinal levels and cranial levels was absent. This fact might be caused by the disturbance of physiological CSF flow.

In another 6 patients whose cisternographies were also abnormal because of malabsorption of RI concentration in vertex subarachnoid space, no constant patterns of "flow rates" was found. However, in every case, "flow rates" of thoracic levels were minus which is caused by the decrease of RI activity.

Investigating these results, some correlation was found between cisternography and our experimental quantitative evaluations. To clarify the CSF dynamics with the quantitative method in evaluation, more study is still continued clinically.

Radioisotope Cisternography in Patients with Brain Tumor

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Radioisotope cisternography (RI-cisternography) has provided valuable information to be used in the diagnosis of hydrocephalus. However, there are few reports about the application of this technique to the detection of intracranial tumors. The purpose of this report is to review our experience of RI-cisternography in patients with brain tumor.