

## J. Brain and Nervous System

### Investigations of RI cisternography

#### —Especially About Ventricular Reflux or Stasis—

S. KUGA\*, M. SHIGEMORI\*, M. WATANABE\*, S. KURAMOTO\*, Y. FURUKAWA\*\* and M. OZEKI\*\*

\**Department of Neurosurgery*, \*\**Department of Radiology, Kurume University School of Medicine, Asahi-machi, Kurume, 830, Japan*

We examined the CSF dynamics of seventeen cases of SAH or ruptured intracranial aneurysm. Seven cases of them showed intraventricular reflux or stasis by RI cisternography with  $^{169}\text{Yb-DTPA}$ , further more all of them were diagnosed NPH according to their clinical signs or symptoms, RI cisternography findings or air study. To all those patients, V-A or V-P shunt operations were per-

formed and the results were all effective.

In most of NPH patients, the distribution of intraventricular RI activity was diffuse. On the other hand, from the aspect of post operative intracranial pressure change, NPH patients showed 30 to 50 mmHg of ICP during 10 to 15 Hrs. after operation.

### Cerebrospinal Fluid Circulation after Subarachnoid Hemorrhage

#### —Follow Up Study by Radioisotope Cisternography and CT—

K. OKADA, R. YOSHIDA, Y. SUGANUMA, M. OHATA, H. HIRATSUKA & Y. INABA

*Department of Neurosurgery Tokyo Medical and Dental University*

We have studied alterations in the cerebrospinal fluid (CSF) circulation after subarachnoid hemorrhage (SAH) and relationship between SAH and obstructive communicating hydrocephalus or normal pressure hydrocephalus in clinical materials.

Eighty-three cases with SAH were studied by radioisotope cisternography. We classified the cisternograms into 5 grades according to the severity of disturbance in CSF circulation (Table). The size of ventricular system was evaluated by pneumoencephalograms, angiograms or CT images.

The follow up study (2 to 5 years) was performed on 22 cases by cisternography, CT and clinical course. Most cases received shunting operation showed good results with decreased ventricular size on CT. The long term follow up cisternograms did not always show the same findings in the same case. Fourteen cases who

were not received shunting operation are divided into 3 groups (unchanged group of cisternographic change; 8 cases, improved; 5 cases, aggravated; 1 case). From this study, we found good correlation between the clinical course, ventricular size on CT and radioisotope cisternographic finding in patients with abnormal CSF circulation after SAH.

#### Table Classification of cisternogram

Grade 1	Normal or delayed convexity flow and no ventricular filling
Grade 2	Normal or delayed convexity flow and transient ventricular filling
Grade 3	Partial or delayed convexity flow and persistent ventricular filling
Grade 4	No or minimal convexity flow and persistent ventricular filling
Grade 5	Non filling in the intracranial cavity. Activity is seen only in the spinal canal.