RI-Cisternogram in Subarachnoid Hemorrhage (SAH)


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It is well known that subarachnoid hemorrhage exerts an influence on the circulation of the CSF to cause complex clinical symptoms and signs to evolve.

Today, RI-cisternography is accepted as the most useful study means of catching hold of alterations in the circulation of the CSF.

In our department, RI-cisternography was performed in 57 cases of subarachnoid hemorrhage in order to assess their prognoses by means of comparing the RI-cisternograms in them with various clinical symptoms and signs; and the following conclusions were drawn:

1. In performing RI-cisternography, it is necessary to observe the morphology of the cisternal RI-image in subarachnoid hemorrhage within 3 weeks after onset, and to study both the morphology of cisternal RI-image and the clearance curve in subarachnoid hemorrhage over 3 weeks after onset.

2. The more frequently subarachnoid hemorrhage has occurred, the slower is the circulation of the CSF.

3. It is not directly related with the severities of clinical symptoms and signs whether there is a ventricular reflex of RI or not, but in cases presenting ventricular filling for more than 24 hours, the longer the ventricular filling stays, the severer is the disturbance of mentality.

4. It should be determined not only from these findings but also from the results of saline infusion test, etc., whether hydrocephalia following subarachnoid hemorrhage will indicate surgery or not.

Clinical Evaluation of Microcephalus with RI Cisternography


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Abstract

Microcephalic infants and children have been studied from various points of views for surgical indication in our clinic. The purpose of this report is to analyze and discuss the RI cisternographic characteristics in microcephalus. 62 cases were examined with $^{169}$Yb-DTPA or $^{111}$In-DTPA intrathecal administration.

C.S.F. clearance was represented by the ratio of head count 24 hr after administration per head count 5 hr after administration (C24/C5).

Head circumference has a correlation with clearance. Head circumference is smaller when C24/C5 showed over 50% or even under 40%.

Development Quotient (D.Q.) was useful for evaluate the mental and physical development of pediatric cases. The more the clearance delayed the poorer the D.Q. was marked. In addition, clearance showed under 40%, the low D.Q. was noted. And D.Q. was poor in cases with convexity filling abnormalities e.g. laterality, pooling, defect, especially frontal rention. These findings reflected the cortical atrophy i.e. low D.Q.

Microcephalic cases were classified into 3 types morphologically with other neuroradiological examinations in our clinic.

Type 1; cortical atrophy and ventricular dilatation.
Type 2; cortical atrophy.
Type 3; ventricular dilatation.

Characteristics of these types in RI cisternography were summarized as follows.
Type 1; relative delayed peak time of head count, ventricular reflux 1/2 of cases, moderate clearance.
Type 2; early peak time, without ventricular reflux, early clearance.

Type 3; delayed peak time, with marked ventricular reflux, delayed clearance.

The usefulness of RI cisternography in evaluation of microcephalus was reported.

Spontaneous Recanalization of Occluded Cerebral Vessels and Its Effect for Regional Cerebral Hemodynamics

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Regional cerebral blood flow and its vasomotor response for CO₂ inhalation and hypertension were examined in 50 cases with cerebral infarction using the ¹³³Xe intraarterial injection method and the rCBF imaging which was reported by us previously. Results of rCBF studies were analyzed with the special interests in its sequential change with lapsed time from onset and with spontaneous recanalization of occluded vessels.

Results were summarized as follows.
1) Spontaneous recanalization in the occluded vessels were observed in 20 cases and, in most cases its occurred within 2 weeks from onset.
2) Luxury perfusion was observed in 65% of recanalized cases but, in occluded group, it was proved only 3 cases out of 30 cases.
3) Luxury perfusion was proved in the cases of not only very acute phase but also 3 weeks after onset.
4) Disturbance of CO₂ reactivity and autoregulation of cerebral vessels were observed in most cases of acute phase. CO₂ reactivity was seemed to recover after 3-4 weeks after the onset but disautoregulation was prolonged to several month.
5) Vasomotor reactivity of recanalized group was almost same as occluded group.

Study on the Unsuccessful Cases of Cisternography

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In the cisternography, injected tracer sometimes leaves from the subarachnoidal space and it disturbs the reading of the cistern. Three hundred and thirty seven cases (373 times) of cisternography examined in our laboratory for the last 4 years were investigated for the purpose to clarify the reasons of such unsuccessful cisternography. The results were as follows:
(1) In total, there were 22% of unsuccessful cisternography accompanied with various grade of brain scan. Completely unsuccessful cases which were not of use were recognized in 5% (19 cases).

(2) There was no remarkable correlations between several radiopharmaceuticals supplied by 3 different companies with results of cisternography.
(3) After investigating the unsuccessful cases, it was found that the reason attributed to the factor of the patient himself was 60%, the malinfusion of spinal tap was 30% and the leakage was 10%. As the possible factor of the patient, increased permeability of blood and spinal fluid barrier or compensatory absorption at spinal level could be considered.
(4) On the other hand, images of malinfusion of