50. The Present Status of the Treatment of Head Injury in the Vicinity of Tokyo

Shigemaru MIKOHCHI

Hibiya Hospital

Chikao IZUMI

The National 2nd Tokyo Hospital

Hideyuki HIRAI, Sigeo TOYA

Keio University Hospital

133 cases required operative procedures out of the cases of the head trauma seen at Keio University Hospital, The National Second Tokyo Hospital and Hibiya Hospital from Jan. 1961 to Sept. 1964.

The 133 cases were consisted of 68 traumatic intracranial hematoma removed opeatively and 65 other complications.

62 cases (46.6%) among them were seen directly after the trauma at 3 above-mentioned hospitals and 49 cases (36.8%) were referred to the specialist from local doctors for further medical care.

The rest (22 cases) were requested the consultation to the specialist in above 3 institutes not by the attending physician but by the patient's family mainly because of the distrust in the local doctor's treatment.

Accordingly, we staongly feel the urgent need to cultivate the local clinician to obtain the knowledge of the systematic appropriate first-aid for head trumatic patient, to establish the all-round practical training and educational system for the expert specialist and to initiate the campaign to build up the head injury centers.

51. Diagnostic Value of LDH Isozyme Studies in Brain Tumors

Hiroo CHIGASAKI, Kintomo TAKAKURA and Keiji SANO.

Depaatment of Neurosurgery, Faculty of Medicine, Univerity of Tokyo

The authors found that the levels of GOT (glutamic-oxalacetic transaminase), GPT (glutamic-pyruvic transaminase) and LDH (lactic dehydrogenase) in the serum and in the cerebrospinal fluid (CSF) were elevated in cases

with malignant gliomas, whereas these values remained in normal range in benign tumors. In individual cases, however, these values were so variable that they were not reliable in diagnosis. This urged us to take a step forward to analyze the distribution of LDH isozymes in the CSF.

LDH isozymes were studied as described by VAN DER HELM. The CSF was dialyzed and condensed by hypertonic PVP. The sample was put on electrophoresis in agar gel and then the plate of the agar gel was incubated in a medium containing a dye of Nitro-BT. After incubation, the plate was washed with water and the proteins were fixed with acetic acid solution. The plate was subsequently dried and densitometry and planimetry were carried out. Each fraction of LDH isozymes was named according to Wieme's method; namely from the anode to the cathode, L_1 , L_2 , L_3 , L_4 and L_5 .

The LDH isozyme distribution of the normal CSF was estimated as follows: L_1 , 50% ; L_2 , 34% ; L_3 , 13% ; L_4 , 3% and L_5 , 0%. In patients with benign tumors such as meningioma, hemangioblastoma, acoustic neurinoma, teratoma and pituitary adenoma, the distribution of LDH isozymes in the CSF was quite different from that of LDH isozymes in the tissue homogenate of these brain tumors themselves. This fact that suggests that LDH in the CSF in these brain tumors does not derive from the tissues of the tumors. In cases of glioma, the distribution of LDH isozymes was characterized by the decrease of L_1 fraction and the relatively large elevation of L_4 and L_5 fractions, consequently showing the pattern of $L_2 > L_1 > L_3 > L_4 > L_5$.

Since the tissue homogenate of gliomas showed a marked elevation of L_5 fraction in the CSF of the glioma seemed to derived from the tumor tissue itself. In a case of intracranial metastasis of liver cancer, the distribution of LDH isozymes in the CSF showed characteristic changes of the tumor tissue itself. In a case of parasitic granuloma, the distribution of LDH isozymes in the CSF resembled intimately that in cases of acute purulent meningitis. As cell counts in the CSF were very high in both conditions, LDH in the CSF might probably be attributed to the leakage from leucocytes.

From these data, the authors believe that studies of LDH isozymes in the LDH isozymes in the CSF can be of diagnostic value in differentiating brain tumors.