factors. Convulsive seizures were clinically observed only in 1 case trepanation group which showed the fast waves of high voltage over 100μv.

In conclusion, evacuation and irrigation of the chronic subdural hematomas through trepanation was considered to be better with less infliction and better results in the early postoperative stage. As to the postoperative electroencephalographic findings, abnomal EEG and characteristic fast waves were observed slightly more frequently in the trepanation-group although clinically not significant.

B-63. The Pre- and Postoperative Electroencephalogram in Chronic Subdural Hematoma

—Especially, EEG changes of early stage of postoperation

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EEG records of 14 surgically verified cases of chronic subdural hematoma are reviewed. Preoperatively, abnormal curves were obtained in 11 cases. These abnormalities consisted in increased voltage and slow wave pattern in 10 cases, and reduction of voltage and slowing in one case. In three cases the EEGs were rated as within normal limits. Postoperative EEG and CAG studies were carried out systematically in all cases. Following the surgical removal of the hematomas, the abnormal EEGs progressively improved and returned to normal within 1 month in 10 cases. The recidural one case showed normal EEG on the postoperative three months. A tracing taken immediately after operation showed appreciable improvement of slowing.

In 10 cases which returned entirely normal EEG within one month, energy% averaged an increase of 11% in alpha band (8–13c/s) and a decrease of 15% in delta band (2–4c/s). Twenty-four hours postoperative, this tendency was visible. EEG abnormality may also correlate with simultaneous cerebral angiographic findings such as shift of anterior cerebral artery and displacement of angiographic Sylvian point in A-P view pre- and postoperatively.

B-64. Experimental Research on the Recovery of the Brain Injury

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There are many causes on the development of traumatic epilepsy.

But, if the brain injury develops, the glia cells will grow on the wound. Then this will be the cause of the epilepsy.

If we clean the wound early, the traumatic epilepsy will be prevented by the inhibitation of the growth of the glia cells and its atrophy.

We make a small injury on the cat brain. Then we discuss it on recovery state histologically.

The wound is principally around the cruciate gyrus. Then we choose Urokinase 1000U. injection every two days, and the freezing placental agent, 2 ml every three days. Then we discuss one month later.

Without the use of drugs, we find around the wound, the disturbance of the position of the cells, the degeneration of ganglion cells and gliosis.

On the contrary, with the Urokinase, the injury reaction reduced properly and the degeneration of ganglion cells disappeared. Gliosis can be seen, but the change is rather smaller than the above example (without drugs).

We think that the freezing placental drugs are quite necessary for the redevelopment of the liver cells as well as the recovery of the other organs.

The injury reaction reduced with the use of the freezing placental drugs on the cat-wound.

We found on the wound, principally the mixion of the lymphocytes, the neutrophyls and the proliferated pial cell. There also is a fatdegeneration. And we found on the wound a small degeneration of ganglion cell, and a

small amount of the extended astrocyte and mesh work of glial fiber.

We think that the injury reaction reduces well in comparison to the non-use drug and it seems that there is the tendency of proliferation of cells.

B-65. The State of Consciousness as a Prognostic Guide after Severe Head Injuries

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Head injuries are the commonest cause of death in road traffic accidents. This is due to the fact that the brain is the most frequent single body area injured and to the fact that it is the organ which is most vulnerable to damage. Although the importance of trend of consciousness has been stressed as an indispensible aid in the management of head injury, there seems to have been few studies which have shown the usefulness of consciousness as a prognostic guide during patient assessment at set times after the injury. This may largely be due to the difficulty of terminology of what is meant by consciousness. We therefore have limited ourselves to assessing the state of consciousness in relation to maximum response of the patients to applied stimulation.

All cases of severe head injury (145 cases) admitted during 1969–1971 were reviewed and the state of consciousness seen at set times after the injury was correlated with ultimate fate of patients. In evaluating the final outcome of the survivors, their ultimate capacity for normal daily activity was assessed, rather than remaining individual neurological deficits. Thus, those who returned to their previous occupation or to school were classified as "useful servivors". All the rest were classified as "disabled".

The state of consciousness defined in operational terms as the maximum response to applied external stimuli seems to correlate well with the prognosis of recovery of patients, and would be useful as one of the parameters in estimating progress or deterioration and therefore in managing the severely head injured.

The state of consciousness seen from the types of response could be classified according to their severity into the following groups— No response to pain; Decerebrate to pair; Flexor response to pain; Purposeful response to pain; Obeying commands; and Answering questions.

The same state of consciousness indicates a different prognosis when seen at different time intervals after the injury. For example progressive recovery from severe concussional injury should be indicated by a progressive rise in the level of consciousness. It is suggested that frequent observations of the state of consciousness would give us valuable information in estimating an ultimate fate of the sverely head injured.

B-66. Serial Electroencephalography in Prolonged Unconscious Patient following Head Injury

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Thanks to constantly improved management of severe head injuries and new methods of reanimation it is nowadays possible to alter the natural course and to save the lives of many patients. Some severely-injured patients do not regain consciousness for a long time. A peculiar clinical state refered to as the "apallic syndome" (Kretschmer 1940). "akinetic mutism" (Cairns 1941), "coma vigile" (Alajouanine 1957), "protracted post-traumatic encephlopathy" (Jellinger & Seitelberger 1970), or "persistent vegetatve state" (Jennett & Plum 1972).

The present report deals particularly with the serial electroencephalographic findings and clinical pictures in prolonged post-traumatic unconsiousness. The data presented in this report derived from 6 cases of severe head injury observed at the Neurosurgical Clinic of the Kyoto First Red Cross Hospital in the years 1971–1973. The age range was from 8 years to 64 years, with 1 child and the rest