Concerning the postoperative improvement of hemimotor disturbance, in the lateral type, 75% of the supra-sylvian type showed improvement of hemimotor disturbance. Infra-sylvian type showed the improvement in 60% and the unchanged, 40%. In the intra-sylvian type, the improved group and the unchanged group were almost equal in percent. In the combined type, on the other hand, there were a few cases with improvement of hemimotor disturbance in the suprasylvian type. But all of the cases in the intra-sylvian type showed no improvement of hemimotor disturbance.

In conclusion, the postoperative improvement of hemimotor disturbance was good in the supra-sylvian type, fair in the infra-sylvian type and poor in the intra-sylvian type in the lateral type. It was noteworthy that there were a few cases with improvement of hemimotor disturbance in the supra-sylvian type of the combined type.

A-18. Cerebral Circulation Time as Predicted of Head Injury

—Measured by Rapid Serial Cerebral Angiography—

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The usage of the technique of serial cerebral angiography is able to measure the cerebral circulation time in relation to each film. The cerebral circulation time is closely related with the severity of head injury. Its prolongation probably suggests the cerebral dysfunction due to brain swelling, laceration or compression which is induced by head injury. Therefore, the measurement of the circulation time is useful to predict the prognosis of the patient.

One hundred and seven times exposure of serial cerebral angiography of 88 cases were performed with automatic injector at the same level of pressure in each case. In order to determine the circulation time, a lag between the beginning of visualization of main branches of cerebral arteries and of the internal cerebral vein was measured. The time of visualizing the terminal branch of the middle cerebral artery and capillary phase were also checked routinely. In this study, the normal circulation time was established in 10 cases which showed no serious neurological signs, to be averaged 2.9±1.1 sec. (ranging 2.0–4.8 sec.).

41 cases of 1st and 2nd types of head injury (either no unconsciousness less than
12 hours) showed no distinct difference from control, and more than 50% of the cases of head injury of 3rd type which had no space occupying lesion on films and continuous disturbance of consciousness over 12 hours (12 cases) showed the prolongation of the circulation time and 4 deceased cases were confirmed marked delay of circulation time. However, 3 patients with delayed circulation time received surgical decompression were survived.

In the cases of subdural hematoma (9 patients), the prolongation of the circulation time was recognized particularly in capillary phase. The cases which received angiography bilaterally, prolongation was more marked recognized in the side of hematoma in comparison with the opposite side. 8 cases of epidural hematoma showed not specific changes in arterial phase, but the venous phase in some cases appeared slowly.

In this sequence study, 10 out of 20 prolonged cases died, and the mortality rate was raised to 70% excluded the cases of epidural hematoma which had no direct brain damage. In cases with intracranial hematoma, prognosis of acute head injury has to do with circulation time than the displacement of anterior cerebral artery and carotid siphon on A–P view.