activity on the brain scintigram and how much glucocorticoid administration influences the abnormal activity according to the histological nature of the tumor.

In 18 cases with initially abnormal brain scintigrams, repeat scintigram after glucocorticoid administration showed decreased abnormal activity in 9. They were 4 cases of glioblastoma multiforme, 2 metastatic tumors, 2 pinealomas and one unverified tumor of the left parietal lobe, all of which had been thought accompanying severe brain edema. In 2 cases out of these, repeat scintigraphy was done after the drug was discontinued. They showed again increased abnormal activity similar to that of the initial scintigrams. On the other hand, there were no changes of abnormal activity in both cases of meningioma and acoustic neurinoma, both of which have been thought that the appearance of the abnormal activity on the scintigram was mainly based on the abundant vascular bed of the tumors.

As an animal experiment, cold induced brain edema was produced in the right parietal region of the Wistar rat. Then, we observed that the radioactivity of Tc-99m-pertechnetate in the edematous region decreased significantly after glucocorticoid administration.

It might be concluded that the decrease of the abnormal activity on the brain scintigram after glucocorticoid administration was due to the improvement of the brain edema by the drugs. Therefore, when one performs the brain scintigraphy, it is important, to make sure whether the patient has been treated with glucocorticoid for accurate diagnosis.

Cerebral Blood Flow in the Aged Patients

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We investigated the regional cerebral blood flow of 36 patients who were all of ages over 65 years old. The average age of this series of patients was 70 years old. These consist of 8 chronic subdural hematomas, 8 normal pressure hydrocephalus, 6 brain tumors, 5 cerebrovascular diseases, 4 Alzheimer's diseases, 2 metastatic brain tumors, 3 miscellaneous diseases.

Regional cerebral blood flow was detected by the 133Xe clearance method of Lassen and Ingvar. Results;
1. Patients with brain tumor: Focal rCBF disturbances could be detected in agreement with the tumor location as verified directly or by other diagnostic procedures. That is, a relative hyperemia was detected at the areas corresponding to the tumor site. Mean fg (flow of gray matter) of 4 patients was $77.3 \pm 14.0$ ml/100 g/min. on the tumor areas, $48.1 \pm 6.6$ ml/100 g/min. on the peri-tumoral regions and $63.1 \pm 4.1$ ml/100g/min. on the non-tumoral regions. Average regional cerebral blood flow of non-tumoral areas in the 4 patients was $36.6 \pm 2.4$ ml/100g/min. and that of the peri-tumoral
areas, 33.1±7.9 ml/100g/min.

Flow values of the non-tumoral areas increased markedly a month after operation.

2. In the patients with occlusion of middle cerebral artery, there was a generalized ischemic type of rCBF on the side of the lesion.

These average rCBF was 33.4 ml/100 g/min. in the diseased hemisphere.

3. The average rCBF in the patients of chronic subdural hematomas was 39.7 ml/100g/min. and postoperative changes of that were not significantly on 2 weeks after operation.

4. The regional abnormalities were found in patients with Alzheimer's diseases. Focal reduction of rCBF were found in the frontal and temporal regions. That is, the decrease of rCBF were 37% and 34% on the each region.

The intra-arterial $^{133}$Xe method allows a separate calculation of flow in the gray and white matter.

The remarked decrease were found in the gray matter flow (31%) and the relative weight of the gray matter (20.7%) in Alzheimer's disease.

In conclusion, that changes of rCBF is an important parameter in the diagnosis and treatment of cerebro-vascular diseases and brain tumor, and other neurosurgical diseases in the aged patients.

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Cerebral Blood Flow of the Normal Pressure Hydrocephalus in the Aged Patients

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We investigated 18 patients of Normal Pressure Hydrocephalus who were all of ages over 60 years. The average age of this series of patients was 68 years, the youngest being 60 and the oldest 84. These consist of 6 unknown, 6 subarachnoid hemorrhages, 4 cerebro-vascular diseases, 2 head traumas.

The criteria of the Normal Pressure Hydrocephalus was determined as follows; (1) normal or low CSF pressure. (2) ventricular dilatation in PEG (Evans' Index shows 0.3 over) (3) $^{199}$Yb-cisternography (ventricular filling, delayed CSF circulation, and without parasagittal accumulation).

Among these cases, 13 shunt operation were performed, and regional cerebral blood flow measurement were examined 7 cases before and after operation by $^{133}$Xe clearance method.

The average rCBF of the Normal Pressure Hydrocephalus was increased from 35.0±3.7 ml/100g/min. to 39.9±4.5 ml/100g/min. on the left hemisphere after operation.

That is, improvement of cerebral blood flow was observed after shunt operation especially in the