27. Experimental Studies on the Treatment of Carotid Arterial Thrombosis in Dogs

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Although reconstructive operations have been widely recognized as the best treatment for carotid arterial occlusions, circulation is successfully restored in only 30% of cases with the complete occlusions. In the present study, therefore, the treatment with thrombolytic agents and/or anticoagulants have been compared with that of thrombectomy.

From our experimental studies with 5 different methods of producing carotid arterial thrombosis in dogs, it was found that thrombotic occlusion was produced by the method with electric current in 92.5% of cases. Moreover, the thrombotic occlusion produced by this method is likely to become complete in course of days.

Using above-mentioned carotid arterial thrombosis, thrombectomy, anti-coagulants and thrombolytic agents have been tried immediately, the 2nd, the 3rd and the 5th day respectively.

The following results have, so far, been obtained.

1) The restoration of blood circulation was obtained by thrombolytic agents without producing any noticeable side effects including cerebral hemorrhage in almost the same ratio (40-62.5%) as by thrombectomy in cases within two days.

2) The restoration of blood circulation was obtained only in 16.7% either by thrombectomy or thrombolytic agents in cases after 3 days.

3) Such a poor result was restored to 80% by thrombectomy followed by heparin administration for 48 hours in cases of 3 days.

28. The Time-Development of the Experimental Cerebro Vascular Disease

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Cerebral embolism was produced by the injection of Gelatin-Indian Ink clot or coagulated blood clots via the internal carotid artery on dogs, and then the dog

were sacrificed half hour, one hour, two hours, four hours, eighteen hours and twenty four hours after the operation. Some of them were alived for 2 days to 20 days after the operation. We examined these groups of cerebral lesions and cerebral blood vessels with the histological method. Thirty minutes after the operation, the cerebral vascular lesions and cerebral lesions were not found by the ordinal histological methods.

One to two hours after the operation, the section revealed partially hemorrhage via vascular wall into the perivascular spaces but there were no vascular changes.

Four hours after the injection, the section showed the perivascular transudation of blood cells, the exsudation of serum and indian ink, however the angioneclerosis could not be found.

Eighteen hours after the injection the section revealed the remarkable appearance of fibrin in perivascular spaces, there were also hemorrhage into the perivascular spaces, extending to the local cerebral tissue. Angioneclerosis were found in some of the sections.

Twenty four hours after the operation the perivascular hemorrhage and white infarction were frequently found. There were proliferation of glia cells at the peripheral areas of the cerebral lesions and angioneclerosis was common in the hemorrhagic infarction.

Two days after the operation, the section showed the new formation of blood vessels, the proliferation of glia cells and the appearance of fat granulated cells.

According to the changes of the above described, at the first the increased permeability of blood vessel could be occurred, the second hemorrhage could be followed, and then fibrin could be appear in cerebral vascular wall producing angioneclerosis.

29. Anterior Cerebral Artery, Thrombosis and Hypoplasia of its Pars Circularis

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It is well-known that the circle of Willis has various anomalies in its anatomical configuration and the so-called "textbook" circle of Willis is encountered in only approximately fifty per cent of the normal population. The string-like Pars Circularis of anterior cerebral artery is rather uncommon among the anomalies but should be always born in mind, because the overlook of the anomaly may lead