exhibited frequently the violent attacks, with the result of alleviation of attacks.


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It became possible under EEG control to produce brain injury of almost identical dose in different animal.

Elevation in CSF pressure after brain injury thus produced was not always reduced by the application of hypothermia.

Our conclusion is that hypothermia is not an effective means in reducing the brain volume and the intracranial pressure, if the considerable cerebral swelling or intracranial hypertension does already exists.

After brain injury, cerebral blood flow reduced markedly, and hypothermia applied to the animals in these conditions did not improve the blood flow.

In animals with head injury A-V $\text{O}_2$ difference and consequently ER $\text{O}_2$ increased for beginning several hours then gradually dropped until the animals died, while, when hypothermia was applied to these animals, A-V $\text{O}_2$ difference and ER $\text{O}_2$ rather dropped at the beginning and gradually increased to the previous level or even more, after rewarming.

This result seems to suggest that hypothermia supresses the homeostatic mechanism of the brain and make the brain possible to survive in the unfavorable environment. Also it indicates the importance of $\text{O}_2$-supply to the animals right after the brain injury and after rewarming from hypothermia.

In the majority of animals with brain injury, RQ of the brain either decreased or increased from the normal range, while in all hypothermic animals but one, it remains normal. If we permit the assumption that abnormal deviation of RQ may well indicate the oxydation of endogenous substrate other than glucose in blood, hypothermia does prevent the breakdown of constituent of the brain.

We previously found that phospholipid of the brain especially lecithin and cephalin decreased markedly after brain injury, and injection of CDP-choline or CMP which is the essential nucleotide for the enzymatic synthesis of lecithin, resulted sometimes in marked improvement either in clinical symptoms or EEG findings.

We prepared series of cats with serious brain injury, in order to give them the various therapeutic procedures and to compare the results of each group.

Hypothermia, by itself, gave us a fairly good result, however, by adding CDP-choline or other nucleotide with enough amount of oxygen, we could get more promising results.