44. The Study of the Response of the Endocrine System to the Brain-Trauma, Particularly on Hypothalamo-Hypophyseal System, Thyroid Gland and Adrenocortex under Hypothermic States

S. ENDO, K. ENDO, T. YAMADA, Y. AISAKA, T. AKUTSU,
M. ONO and F. FURUKAWA

Department of Surgery, Fukushima Medical College, Fukushima
(Director: Prof. S. Endo)

The present authors made trials to clarify physio-pathology in medical treatments for head injuries.

(A) In the present experiments.

Rabbits used were divided into following three groups.

Group 1; With Brain-traumas only.

Group 2; With Brain-traumas treated with Cocktail M-1 injections.

Group 3; The same as (2) under hypothermia at 30°C with ice.

Functional-histological studies were made, (1) on the neurosecretion and anterior hypophysis cells in the hypothalamo-hypophyseal system, (2) on values of PBI., T/S., M.C.H. in relation to the thyroid gland and (3) on the ascorbic acid contents in, weights, and morphology of adrenal cortex and on leucocytes etc. as was caused by the glands functions, during the course of the experiments.

Results obtained in each levels of Group 1 changes in animals rapidly in 2 to 4 hours after the trauma and the change recovered in 7 to 10 days. On the contrary in either group (2) or (3) the change was found to be inhibited by the Cocktail M-1 injections or through the hypothermia. These results made some suggestions on the therapy for head injuries.

(B) In the clinical cases.

The same tendency as in animal experiments was found in the present clinical studies.

45. Clinical Studies on the Cerebral Blood Flow during the Hypothermia

Futami KOSAKA, M.D. et al.

Dept. of Anesthesiology Okayama Univ.

Examination of cerebral blood flow, cerebral oxygen consumption, cerebral delivery oxygen (CDO₂) and Efficiency Rate (ERO₂) were performed twice be-

fore and after hypothermia had been done on eight patients without any cerebral disease and good risk aged from thirty one to sixty.

The method of measurement of the cerebral blood flow are used modification of the original Kety and Schmidt's nitrogen-nitrous oxid-oxygen method.

As there exist in some cases difference of the contents of nitrous oxide between cerebral arterial and venous blood still after twenty three minutes during hypothermia, in these cases cerebral blood flow calculated by the obtainment the point crossed contents of nitrous oxide in arterial and venous blood on the monograph.

Hypothermia was done Fluothane Anesthesia with succinylcholine and surface cooling. Body temperature was average 36.6°C before anesthesia and average 30.5°C during hypothermia.

Cerebral blood flow were decreased from average 54.7 ± 7.7 cc/100 g brain/min. to 18.9 ± 10.4 cc/100 g brain/min. with the body temperature was lowered.

Cerebral oxygen consumption were also decreased from average 2.9 ± 0.74 cc/100 g brain/min. to 1.6 ± 0.69 cc/100 g brain/min.

Cerebral delivery oxygen (CDO_2) decreased in all cases from average 8.5 cc to 3.4 cc i.e. 60 per cent decreased.

Cerebral efficiency rate (ERO_2) increased on six of eight cases and decreased on two of eight cases. i.e. average 33.8 per cent before anesthesia and average 49.9 per cent during hypothermia.

46. Effects of Hypothermia on Cortical and Depth Electrograms in Cerebral Circulatory Occlusion

Shojiro CHIBA, Masumi YOSHIOKA, Kintomo TAKAKURA, Hiroyuki MIYAKE,
Isao HAYAKAWA, Hiroshi TOYOSHIMA, Eiichi YAMAMOTO
and Junichi SHIKATA

1st Surg. Dept., University of Tokyo