55. Experimental Study of Fluorescent Staining on the Injured Brain Tissue

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There have been few reports on fluorescent staining of the brain tissue in the world literature. The authors studied injured brain tissues subjected to the fluorescent staining with acridine orange.

Rats's brains were damaged by the electrocoagulation of the parietal bone. Rats were sacrificed by decapitation at the regular intervals.

The materials were fixed in 10% formalin, then embedded in paraffin and four micron sections were made. These were stained with 0.01% acridine orange solution, subjected to ultra violet light of the Chiyoda mercury lamp.

On the non-injured cerebral tissue of rats, gliar nuclei showed greenish brown fluorescence, protoplasm yellow, nerve cells yellow and glial net work green.

On the other hand, on the injured cerebral tissue, cells were found to radiate bright yellow or red brown fluorescence and glial net work brown, where changes were seen by HE stain. This brown glial net work was also seen along the wall of ventricle and a part of the superficial later of the cortex where changes were not seen by HE stain.

The brown fluorescent areas stained with acridine orange almost corresponded to the fluorescent sites induced by the administration of Na-Fluorescein, or photosensitized fields on radioautogram induced by using iodinated radioactive human albumin in the injured brain tissue.

It was considered that these alterations were in correlation with the breakdown of BBB. This brown fluorescent areas of glial net work became narrow and red fluorescent cells diminished by treatment of 50% Glucose, Neo Urea and hypothermia.

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56. Electron Microscopic Study on the Alterations in Nerve Cells due to Experimental Head Injury

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In the present study, I examined with electron microscope the ultrastructural details of changes in nerve cells due to the head injury. As a control experiment,