The Japan Neurosurgical Society

57. Studies on the Genesis of Acute Pulmonary Edema after Brain Operation

Miyoshi URABE, Shinjiro YAMAMOTO, Takashi TSUBOKAWA, Kimpei ARAKI, Hiraki SAKURAI, Morio MIYANAGA, Makoto KIKUCHI, Satoru KADOYA AND Masao SEKI
Department of Surgery, School of Medicine, University of Kanazawa

It is repored that acute pulmonary edema occurs after brain trauma as well as brain operation. We have recently experienced 8 cases of acute pulmonary edema who received brain operation and treatment for brain trauma in our clinic. Classifying these cases according to the location of foci, we can divide them into 2 groups; the one is in relation to preoptic area and hypothalamus, the other, to the pons and medulla. Thinking that these attacks were coincident with that of the dog having pulmonary edema caused by preoptic lesions, its pathophysiology was studied. It was clarified that pulmonary edema caused by disturbance of central nervous system has a rising of pulmonal arterial pressure as well as an increase of permeability of pulmonal vessels and at the same time, affecting the liver, kidney and endocrine organs, is accompanied by oliguria and the disturbance of water and electrolytes balance, and thus causes pulmonary edema. Furthermore, seeking locations causing pulmonal arterial hypertension selectively in the brain, we found a descending pathway and clarified the outlines of the pathways of pulmonary vascular innervation as well as its reflex pathway. Then, the influences of hypothermia to these pathways were examined.

From the above mentioned studies, we obtained and reported our knowledge of the genesis of acute pulmonary edema after brain operation and brain trauma and its relation to hypothermia.

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58. Postoperative Pulmonary Edema and Correlation with Circulation and Metabolism in Brain

Junichi WAKIZAKA, Shinken KURAMOTO, Mitsuo WATANABE AND Seiken KO
The First Department of Surgery, Kurume University, School of Medicine

Cerebral blood flow, cerebral and venous pressure, cerebral circulation time, metabolism in brain were investigated and in addition, cardiopulmonary hemodynamics, that is, cardiac output, pulmonary arterial pressure, pulmonary arterial wedge pressure, vascular resistence of the lung, and ECG with intracardiac lead were measured experimentally in cases of pulmonary edema produced in grown up dogs.

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