29. Enhancement Tumor Immunity-Modification of Autochthonous Antigen with Mercaptounadecahydroduodecaborate

Hiroshi HATANAKA, Hisashi YAMADA and Keiji SANO

Department of Neurosurgery, University of Tokyo

This is the 2nd publication following the paper given at the 58th Annual Meeting of the Society of Neurological Surgeons held in April, 1967 at Portland, Oregon.

The possibility of tumor-specific antigens has been recognized by many people by now. But many trials of application of such antigens to therapeutic purpose have so far failed probably owing to very low antigenicity of the antigen itself. Hatanaka invented the preparation of tumor antigens modified with one of the boron-sulfhydryl alkylating agents, Na2B12H11SH, which forms a strong bond with tumor proteins, to enhance the antigenicity of the tumor antigens.

The material was an isogeneic brain tumor originally induced by methylcholanthrene and transplanted subcutaneously into C3H/HeJ mice. The mice that had received the vaccine that had been made by incubating the tumor homogenate with an isotonic solution of the compound demonstrated a marked tumor growth retardation in comparison to the non-treated group of mice. And further, the vaccine showed a statistically significant tumor growth suppression even when it was given after the tumor was transplanted.

It was clarified that this tumor-suppressive effect did not owe to some anti-tumor action of the compound, by a fact that the administration of the compound alone had not suppressed the tumor growth and by an antigen-clearance test.

30. Hyperbaric Oxygen Therapy as a Postoperative Management in Neurosurgery

Kenzo MATSUOKA, Tohru Uozumi, Mitsumasa KANO, Tsukasa KISHIDA and Kazuyasu NAKAO

1st Dept. of Surgery, Osaka Univ. Medical School

Recently, it is reported that hyperbaric oxygen therapy has a possible value in some diseases in which hypoxia is present. However, it has not been clarified whether this therapy is effective for the unconsciousness in the postoperative course of neurosurgery.
The present investigation has been designed to examine the influence of the hyperbaric oxygen therapy on the state of unconsciousness in the neurosurgical patient.

Under two atmospheric pressures (2 ATA), the cerebrospinal fluid pressure, systemic blood pressure and heart rate of the patients were not significantly changed. Electroencephalograms during this therapy showed a decreasing of the slow wave burst and increasing of the alpha index.

The results of the measurements of PO₂, PCO₂ and PH in the blood taken from the femoral artery and the internal jugular vein are presented. A significant A-V difference of PO₂ was noted.

The level of consciousness slightly improved in some patients during hyperbaric oxygenation, however, a definite conclusion regarding the effectiveness of this therapy on the unconscious patients in neurosurgery was not obtained from this investigation.

**Discussion to 30**

Katsuoki AKASHI, Tadanobu TAKAGI and Koichi KITAMURA
Department of Neurosurgery, Faculty of Medicine, University of Tokyo

Recently, hyperbaric oxygenation is recognized as an effective treatment in neurological disorders and postoperative management in neurosurgery.

Several cases were treated with hyperbaric oxygenation.

We treated eight postoperative cases which showed disturbance of consciousness following craniotomy; brain tumor (4 cases), intracranial aneurysm (1 cases) and acute intracranial hematoma (3 cases).

In 5 cases, improvement of consciousness was observed. 6 cases was treated with hyperbaric oxygenation within a week after the operation. The other two cases showed postoperative disturbance of consciousness for 40 or 106 days, respectively. 3 cases which showed no clinical improvement were cases of severe acute intracranial hematoma. They died on the next day. 2 cases of prolonged disturbance of consciousness showed improvement of consciousness and other neurological signs but they died unfortunately due to complication of meningitis.

The C.S.F. pressure during hyperbaric oxygenation was measured continuously with a strain gauge transducer in 2 cases, 3 times. The C.S.F. pressure decreased during hyperbaric oxygenation and gradually increased to the previous level during decompression. The rebound phenomenon was not observed.

In animal experiments (dogs), the cerebral blood flow at the common carotid artery with or without the external carotid ligation was measured with an electromagnetic flowmeter. The cerebral blood flow decreased about 25~30% during compression and increased to the previous level during decompression.