

80. Studies on the Chemotherapy of Malignant Brain Tumor

CEREBRAL INFUSION UNDER INTERRUPTION OF BLOOD FLOW OF LIMBS WITH SURFACE COOLING

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As a considerable systemic leak of chemotherapeutic agents occurred in the therapy by means of cerebral perfusion with pump oxygenator and difficulty of repeated therapy, we had tried repeated cerebral infusion by simple percutaneous carotid injection of agents under temporary occlusion by tourniquets in limbs on each time.

The minimal biological effective doses of agents had been decided by measurement of biological toxicity and potency for bone marrow of 35 young cats. The dose was 2mg/kg in Nitrogen mustard, 40mg/kg in Endoxan and 10mg/kg in 5-Fluorouracil.

The effective time that the arterial tourniquets should be left in place was decided by biological damage of bone marrow when tourniquets were placed in various times in 34 cats. The effective time to protect marrow was 7 min in Nitrogen mustard and 5 hrs in Endoxan.

This therapy had been used in 11 cases of malignant cerebral gliomas. In adult cases, the aspirated marrow from both ilia was sterilized and injected into the nearly empty tibial marrow spaces.

In cases of Endoxan, the limbs distal to the tourniquets were placed in ice for 5 hours without changing the systemic body temperature.

81. Chemotherapy of Brain Tumor by Localized Cerebral Perfusion (5th Report)

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Since our previous (4th) report chemotherapy of brain tumor by localized cerebral perfusion was performed in more than 6 cases. Therefore, the cerebral

perfusion therapy was performed in 28 cases (29 times). Nine cases of our series are still alive. All of them were given Thio-TEPA, Alanin N. M. or Trenimon (Bayer 3231) during only 10 minutes of perfusion period. The postperfusional survival period of them are 31~8 months (average 17 months). Two of the 9 cases are still lying on bed, but the remaining 7 cases have returned their former life. Nineteen cases deceased already. Causes of death were mostly due to the original brain tumor. Six cases died from the side effects of perfusion or excessive amount of anticancer drugs.

The results mentioned above are the summary of our perfusion therapy during the last 4.5 years. In order to find out more suitable kind and dose of anticancer drug, tissue culture screening test has been performed. Roller-tube method by plasma-clot (Golomb, 1962) and Trypsinization method (Ambrose, 1963) have been studied in 35 cases of brain tumor. Result of the screening test was obtained in 9 cases. According to the results heretofore obtained, the sensitivity of brain tumors against various anticancer drugs was not standardized. However, Trenimon was universally effective against brain tumors. Relationship between the results of tissue culture screening test and clinical effects have been being studied.

82. Experimental and Clinical Uses of an Ambulance Equipped with Surface Cooling General Body Hypothermia Machine

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Experimental and clinical experience have repeatedly demonstrated the longer survival rate of animals or patients with head traumatism when subjected to mild hypothermia (rectal temperature of 35°C) as soon as possible after the injury:

In order to shorten the time interval between injury and hospital management of the patient, the ambulance itself was equipped with the hypothermia machine using the principles of refrigeration so that cold air is circulated within the patient's chamber while the patient is being transported to the hospital.