
Compiled by

G. P. Cantore*

Intracranial Space Occupying Lesions

Knerich, R.*, Nicolato, A.*, Adinolfi, D.*, Giunta, F.***, Soffieti, R.****, Butti, G.*, Buoncristiani ***** (* Neurosurgical Department and "Centro Enrica Grossi Paoletti per il trattamento dei tumori del sistema nervoso" of the University of Pavia, ** Department of Radiology and Physical Therapy of the University of Pavia, *** Neurosurgical Department of the Spedali Civili, Brescia, **** Neurological University Clinic II a of Torino, ***** Neurosurgical Department of the Ospedale Generale Regionale, Perugia):

Analysis of Factors Influencing Survival of Patients with Endocranial Malignant Gliomas

From 1973 to 1979 we treated 142 supratentorial endocranial malignant gliomas in patients ranging from 16 to 70 years in age according to the following therapeutic scheme: surgery and histological diagnosis of malignant glioma, radiotherapy (5,500 ± 500 R) to whole brain, and chemotherapy with 1.3-bis(2-Chloroethyl)-1-Nitrosourea (BCNU) at a dose of 80 mg/m²/die i.v. for 3 consecutive days every 8 weeks.

The chemotherapy dose was calculated according to the haematological toxicity encountered. Median survival time was 12.5 months (54 weeks).

Factors which had a significant correlation to survival time and which could therefore be important in further combined therapy clinical trials were searched for. It is, in fact, known that the prognosis of patients affected by malignant glioma is influenced by many complex factors, partly linked to the individual himself and partly linked to treatment methods. An analysis of each factor was made, and a comparison was drawn between the frequency found in the group of patients with a greater-than-median survival time and that in those with a lower-than-median survival time.

This study was partially supported by the National Cancer Institute (U.S.A.) (Contract No. NO1-CM-67056) and by the C.N.R.—P.F. “Controllo della crescita neoplastica”—Sottoprogetto “Controllo chemiogerapico” Roma, Italia.

* Dr. G. P. Cantore, Clinica Neurochirurgica dell'Università di Roma, Viale dell'Università 30, I-00185 Roma, Italy.

The Brain Tumour Study Group reported for high grade astrocytomas a median survival of 17 weeks for the best conventional care group, 37.5 weeks with Radiotherapy (Rxt), 40 weeks with Rxt and BCNU. BCNU produces a cell kill of 4 logs in vitro but not in vivo, and may have a radiosensitizing action. Based on in vitro and in vivo models different schedules of BCNU and Rxt have been suggested to try to get closer to a 4 log cell kill in humans.

To evaluate the clinical effect of BCNU when given before and after Rxt we did a phase 2 non randomized survival study in which there were patients with biopsy proven high grade astrocytomas. BCNU (100 mg/m²/die, i.v. for 3 days) was given in the 2nd week after surgery. Rxt (4,000–5,250 r in 6–7 weeks) was started the following week, and BCNU was given during the last three days of Rxt also to take advantage from the radiation-induced damage of the blood-brain barrier. Courses were repeated at 6–7 week intervals until deterioration.

Out of the 50 eligible patients entered in the study between October 1976 and March 1979, 29 were evaluable. The median survival was 49 weeks with a range of 12–133 weeks, and one patient was alive at 144 weeks. This survival is somewhat better than that reported by the BTSG. Looking for better results we are now studying a polychemotherapy protocol.

Pierangeli, E., Occhiogrosso, M., Vailati, G. (Neurosurgical Department of the University of Bari): Polyamines: Recent Perspectives in Neurosurgery.

The polyamines putrescine (Pu), spermine (Sp), and spermidine (Sd) are small molecules related to cell reproduction.

CSF levels of Pu and of Sd are often found to be elevated in patients with recurrent medulloblastoma before CT scan, isotope scan, myelography and cytology become positive. Repeated measurement of CSF polyamines in the postoperative period gives a better chance of closer monitoring.

CSF Pu levels are not correlated to the growth of glioblastomas, usually located deeply in the hemispherical white matter. The recent measurement of a low Pu diffusion coefficient in the brain and of a high capillary permeability, support the hypothesis that in patients with glioblastomas Pu does not easily reach the CSF. On the contrary, in patients with medulloblastomas, which are usually located in the posterior fossa adjacent to the CSF pathways, the Pu produced by the tumour immediately reaches the CSF. From these data it was possible to speculate on a possible practical use of Pu CSF levels for other malignancies very close to CSF pathways such as meningeal leukaemia and carcinomatosis.

Recently it has been reported that higher levels of Pu and ornitin-decarboxilase (synthetic enzyme) are related to the histological grade of malignancy. We suggest the possible utility of a prospective study to relate the levels of Pu and of ornitin-decarboxilase in biopsy material to the actual survival.

From a therapeutic point of view it was suggested that the blocking of polyamine synthesis could stop or impair the neoplastic cell reproduction. Difluoromethyl-ornitine is a substance that blocks the synthesis of Pu from ornithine, and