Bra 06

PROGRESS IN INTERSTITIAL IRRADIATION OF INOPERABLE MALIGNANT BRAIN TUMORS

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In recent years, marked advances, which can be regarded as curative, have become evident in the treatment of inoperable semimalignant gliomas (I-II WHO). In this context interstitial irradiation - and specifically the permanent implantation of 192 IR and 125 J - has proved to be very effective. Survival times of 12 years or more with a 5-year survival time of 50% have been reported (Mundinger et al, in:Dietz et al, Klinische Neurochirurgie. Stuttgt., p.519-565,1983).Complete remissions of 2 years have so far been observed by us (Oppel,F. H.W.Pannek, J. Voges, in: Samii M.(ed) Tumors in and around the brain-stem and the third ventricle. Berlin, 1985-in press). On the other hand, this therapy has proved to be unsuccessful, however, for malignant gliomas (III-IV WHO). The authors report their results in 20 patients with the method of fractionated afterloading in association with percutaneous irradiation (external beam) they developed for inoperable malignant brain tumors. This so-called afterloading technique is an intracavitary radiotherapy with highly active radionuclides. An emitter is introduced by computer control (Buchler-unit) into a super-refined steel tube previously implanted in the longitudinal tumor axis, and the tumor is irradiated "from inside". This procedure offers the following advantages:

1. The spatial dose distribution can be adjusted to the size and shape of the tumor.
2. A relatively high radiation dose can be delivered to the center of the tumor (spatially superselective).
3. Radiologically favourable fractionation is achieved by application of up to 15 single doses (per dose 2 Gy).
4. Undesirable protracted effects of irradiation are safely avoided.
5. High radiation volume is ensumed to association with percutaneous irradiation.

The case control studies (12 months at the time of submission of this abstract) of CT-scans showed a regression of the tumor with an irradiation necrosis in the previous tumor area. These results correlate with continuously decreasing neurological defects and the patient's good general condition.

Bra 07

TREATMENT RESULTS IN RADIATION THERAPY OF PITUITARY ADENOMAS

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During the last decade change in surgical technique (e. g. transsphenoidal approach) as well as change in endocrinological management brought about much improvement in treating pituitary adenomas. In order to outline the value of radiation therapy a retrospective study was done including 58 patients treated at our institution from 1961 to 1985. Primary radiation therapy without pathohistological verification was carried out for 19 patients, combined modality treatment with surgery first and postoperative irradiation in 39 patients. Megavoltage irradiation therapy was delivered in conventional fractionation (2 Gy/die) percutaneously. In split-course technique a total dose from 40 to 50 Gy (42 patients) was achieved within 9 weeks.

Combined modality treatment (39 patients)

Surgical procedure was according to growth pattern of the large tumors mostly transfrontal (36). Pathohistological classification revealed 31 chromophobe and 8 acidophilic adenomas. In the group of patients with chromophobe adenomas 28/31 presented with decreased visual acuity and/or visual field deficits caused by mass effects. Local tumor control was clinically seen in 29/31 patients after a mean follow-up period of 67 months. Mass effects were improved in 20/31 cases. 25/31 patients showed a remarkable relief as to headache, amenorrhea, psychosyndrom. In the group of patients with acidophilic adenomas 6/8 presented with acromegaly, 5/8 with visual deficiencies. At clinical presentation 7/8 tumors were locally controlled after a mean follow-up period of 78 months. Clinical progress could be successfully stopped in 5/6 patients primarily presenting with acromegaly. Four times growth hormone was improved, once it was even changed to normal. 4/5 patients did better according to visual acuity and/or visual field deficits.

Primary radiation therapy (19 patients)

In this group - treated without pathohistological verification - 6/19 patients presented with acromegaly, 2/19 with Cushing's disease, 9/19 with mass effects. Local tumor control was achieved in 14/19 patients after a mean follow-up period of 113 months.

In the whole group of 58 patients there was no record of severe side effects like optic nerve injury or brain necrosis.

In summary primary radiation therapy as well as combined modality with surgery first and postoperative irradiation revealed excellent long term results in respect to tumor control and improvement of clinical symptoms in large pituitary tumors.

Concerning the management of large (extrasellar) tumors with mass effects and/or of patients that cannot be submitted to surgical or medical management, a multimodal regimen just from the beginning of treatment is put forward. This is to include the total range of complementary skills like neuroradiology, ophthalmology, endocrinology, neurosurgery and radiation oncology.

In evaluating long term results of new surgical approaches as well as medical management the effectiveness of irradiation should be carefully kept in mind.

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Bra 08

COMBINED MODALITY THERAPY WITH IRRADIATION AND ACNU IN BRAIN METASTASES.

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In patients with brain metastases radiotherapy is the treatment of choice regarding remission rates and median duration of response (MDR).In this study concomitant irradiation and chemotherapy has been instituted with the intention to improve local control.

Over a period of 24 months, 34 patients with brain metastases have been treated. 20 of them had bronchial,6 breast carcinoma, and 2 hypernephroma ; in 6 cases the primary tumor was unknown. Patients were treated in this study if the performance status was > 50 and immediate treatment of the primary tumor or further distant metastases was not necessary.

Patients included in this study obtained dexamethasone and received whole brain radiation therapy with a midline dose of 30 Gy , 8-10 Gy weekly. ACNU, a nitrosourea derivate, was given at a dose of 75 mg/qm i.v.once every four weeks,in 6 cycles. Generally treatment was well tolerated.Patients not pretreated showed only a mild thrombocytopenia (grade 1) after 6 cycles. Even in 3 pretreated patients we observed only a transient thrombocytopenia (grade 2) after 3 cycles ACNU.In CT controls complete response occurred in 15 and partial remission in 11 patients. Eight patients showed no change. MDR in all patients treated was 6,0 months. Response rates and MDR appear to be better than those achieved with radiation therapy alone.We conclude that a concomitant radiation and ACNU therapy is feasible and may be advantageous comparable with radiation alone.

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Sal 01

THE IMPORTANCE OF TUMOR MARKERS FOR THE CLASSIFICATION OF MALIGNANT SALIVARY GLAND TUMORS

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On the basis of the Salivary Gland Register more than 800 malignant salivary gland tumors were analysed during the period of 1965 to 1984. Different tumor markers (intermediate filaments, markers for epithelial and glandular differentiation, lectins, blood group substances etc.) give insights into cytologic differentiation and histogenetic development (G.Seifert, J.Caselitz, Cancer Detection and Prevention 8, 23, 1985). Origin of the malignant proliferation is mostly the terminal ductal system (indifferent cell of the reserve cell type). High differentiated malignant tumors are characterized by the persistence of markers of the ductal cells with secretory functions (lactoferrin, lysozyme, secretory component), by the expression of many lectin receptors (PNA, HPA, ConA, etc.) and the occurrence of blood group substances (A.B.H.Le). This pattern of tumor markers can be observed in adenocarcinomas, adenoid cystic and salivary duct carcinomas, mucoepidermoid tumors and carcinomas in pleomorphic adenomas. The occurrence of myoepithelial cells in some types of tumors (adenoid cystic carcinomas, salivary duct carcinomas etc.) can be defined by a staining of actin, myosin and S-100 protein, the co-expression of keratin and vimentin and the presence of basal membrane associated substances (laminin, fibronectin, elastin). Acinic cell tumors show a positive reaction for amylase. Further aspects are the evidence of hormonal markers, the occurrence of growth factor receptors or the use of viral and chromosomal markers.

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