grade I–II (n = 6), grade III (n = 6). and grade IV (n = 28)). (1) Median cytosolic levels of *uPA and PAI1* as determined by ELISA, were respectively 0.03 ng/mg protein (range 0.003–0.16) and 11.9 ng/mg protein (range 0.25–161.8). The highest levels of PAI1 were found in grade IV tumors as compared to grades I–III ($P < 0.001$). Expression of uPA and PAI1 was confirmed by Northern blot and *in situ* hybridization which localized PAI1 predominantly around neoangiogenic foci, both in tumor and endothelial cells. (2) *Expression of PAI2* antigen was heterogeneously distributed among tumors (median = 0.18 ng/mg protein, range 0.02–6.8) but was undetectable in control tissues. This data was confirmed by *in situ* hybridization. (3) *Univariate analysis* demonstrated that high levels of PAI1 are associated with a shorter disease-free survival both for the overall population ($P = 0.02$), and the grades IV ($P = 0.06$). In grade IV gliomas, high levels of PAI2 are, in contrast, highly correlated to a better overall survival rate at 18 months (48% vs 0%, $P = 0.015$). Our preliminary results suggest that, in malignant gliomas, PAI1 and PAI2 may be useful in the analysis of therapeutic protocols. Further studies should precise their biological role, in order to evaluate them as potential therapeutic target.

263 ORAL

INTRALESIONAL RADIOIMMUNOTHERAPY OF MALIGNANT GLIOMAS AS ADJUVANT SETTING IN NEWLY DIAGNOSED TUMOUR OR AS RESCUE TREATMENT IN RECURRENT LESIONS

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Two I-131 labelled murine Monocolonal Antibodies (MAbs) BC-2 and BC-4 raised against tenascin (TN), were intralesionally infused in 48 patients bearing a malignant glioma: 28 with recurrent disease (Rec) and 20 cases with newly diagnosed tumour (New). All patients were previously treated with surgery and radio-chemotherapy. Twenty-four Rec cases underwent further surgery which obtained a total or subtotal removal of tumour mass in 10 of these. In total 25 patients had intralesional RIT when the disease was minimal. The radiopharmaceutical was given at a dose of 4 mg of MAbs and 2405 MBq of ^{131}I. The infusions were repeated up to six. The local treatments were always well tolerated. The radiation dose to the tumour was on average >300 Gy per cycle. The median survival was, in total, 18 months. Intralesional RIT produced 12 complete remissions (6 in Rec and 6 in New), 6 partial remissions (4 in Rec and 2 in New). In 19 cases (15 Rec and 5 New) the progression of disease was recorded. The overall response rate was 37.5% (35.7% in Rec and 40% in New). These data demonstrate the capability of this new therapeutic technique to achieve, in a significant number of cases, a long lasting control of malignant gliomas and suggest the opportunity to apply this treatment when the disease is reduced owing to previous traditional cares. (Work supported by National Research Council program (Italy): Clinical Applications of Oncology Research, subproject n.8.)

264 POSTER

EMBOLIZATION AND RADIATION THERAPY OF CHEMODECTOMA OF THE TEMPORAL BONE

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Between September 1986 and January 1993, a total of 12 patients with primary (8) or recurrent (4) chemodectomas of temporal bone were treated. Diagnosis was assessed by clinical examination and radiographic studies (7) or by histological confirmations (5). All patients presented with group III disease and four presented with brain involvement. All patients were treated with embolization either within one week before initiation of radiation therapy (10), or 3 and 4 years before, respectively. All patients were irradiated with a wedged field technique using 60 Co gamma rays or 12 MV photons. The total tumour doses were 45 Gy/25 fx (4) or 50.4 Gy/28 fx (8). Ten evaluable patients have been followed for 13 to 84 months (median 32). Nine evaluable patients had local tumour control defined as having no evidence of progression of disease clinically or radiographically to the date of analysis, whereas in one patient tumour progressed. Cranial nerve paresis improved in 6 patients after a latency of 22 to 72 months (median 44). This study demonstrates that radiation therapy with preceeding embolization therapy is an effective treatment for advanced chemodectomas

265 POSTER

RADIATION THERAPY IN OPTIC GLIOMAS OF CHILDHOOD: PROGNOSIS AND LONG TERM SEQUELA

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Thirty-three children with the diagnosis of optic glioma were admitted to Department of Radiation Oncology in Ankara University Faculty of Medicine between 1973 and 1994. Twenty-two patients were female and 11 were male, with a female:male ratio of 2:1. Their ages ranged between 1 to 18 (mean:8.4, median:7). Six patients (18.2%) presented with neurofibromatosis. Twenty-nine patients (87.9%) had histopathological diagnosis of astrocytoma. Tumors were confined to the optic nerve in 5 patients (15.1%), confined to the chiasma in 6 patients (18.2%) and involved both the optic nerve and chiasma in 22 patients (66.7%). Subtotal resection of the tumor was performed in 20 patients (60.6%). Thirteen patients received irradiation as sole therapy. Two patients were irradiated for recurrent tumors. Mean follow-up was 158 months. Actuarial survival for 5 and 10 years were 91.9% and 77.9% respectively. Age, sex and subtotal resection did not appear to correlate with survival. Presence of neurofibromatosis reminded bad prognosis. One patient developed precocious puberty, two others developed panhypopituitarism and one posterior hypopituitarism. One patient was diagnosed as organic brain syndrome at the age of 30 and two patients had anxiety disorder. Radiotherapy proved to be an effective for tumors involving chiasma where surgery is not feasible. Long term follow-up would disclose either treatment or tumor induced sequela.

266 POSTER

PET-FDG UPTAKE AS A PROGNOSTIC INDICATOR IN GLIOMAS

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Positron Emission Tomography (PET) with 18-Fluorodeoxyglucose (FDG) provides quantitative and qualitative data on cerebral glucose consumption and is used in the evaluation of intracranial neoplasms. We have examined the value of PET-FDG uptake on glial tumor prognosis.

Material and Methods: PET scans of 31 patients with Grade 2–4 gliomas were evaluated prospectively on a semiquantitative scale from 0–4 according to avidity of 18-FDG uptake. Mean age of the patient group was 40.4 years, mean follow-up period was 42 months. Actuarial progression free survival was calculated as correlative endpoint.

Results: High FDG-uptake scores correlated with a worse prognosis (42% vs. 22% actuarial 5 year progression free survival, $P < 0.05$, high vs. low scores,). Age and Grade however were stronger indicators ($P < 0.001$). PET-FDG scores appeared more germane in the case of high grade tumors, indicating a better ability to discriminate the tumors with the poorest prognosis.

Conclusion: Avidity of FDG uptake in our patient group provided additional and complementary information to conventional factors such as age and grade with regard to prognosis.

267 POSTER

CHEMOTHERAPY FOR LOW GRADE GLIOMAS

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Complete surgical resection is the standard treatment for low grade gliomas (LGG) but it is sometimes impossible to perform. Radiation therapy has been extensively used as a complementary treatment or as the only treatment in inoperable tumors. Anyway, because of its deleterious long term effects, recent attempts have been made in order to investigate the efficacy of chemotherapy (CT) in young children and/or huge inoperable tumors. Since 1990, 35 low grade glioma patients (pts) have been treated with the SFOP BB CT protocol which includes: 7 cycles of carboplatin, procarbazine, etoposide, cisplatin, vincristin, cyclophosphamide, for 16 to 18 months. They were 16 males and 19 females aged 6 m to 104 m (median 25 m). The tumor was located in the optic pathway/hypothalamus in 22 pts, cerebral hemispheres in 3, basal

ganglia in 3, brain stem in 4, cerebellum in 1, spinal cord in 2. Histological confirmation of LGG was obtained in 25/36 pts. Median follow up is 16 months. Till now 23/35 pts have been treated by CT alone with the following radiological results: 1 CR (36 m+), 4 GPR (16+, 17+, 19+, 41+ m), 5 PR (12+, 15+, 16+, 29+, 30+ m), 6 OE, 7 SD. Tumor progression was observed in 12 pts, during CT in 6 pts and after completion of CT in 6 pts. Only 1/35 pts have died of disease.

In conclusion, 22/35 (60%) pts demonstrated at least an objective response to this CT regimen and in 30% of the pts the shrinkage of the tumor was greater than 50%. Toxicity of the regimen has been acceptable. CT is able to defer the need for further treatment in the majority of pts. *Supported by ARC.*

268 POSTER

FRACTIONATED STEREOTACTIC RADIOSURGERY (FSR) AND CONCURRENT TAXOL FOR RECURRENT HIGH GRADE BRAIN TUMORS (RBT)

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Use of concurrent FSR and Taxol for RBT is reported.

Twenty-six patients (pts) with tumor volume from 3.1 to 138.5 cc (mean 44.7) using from 1 to 4 collimators (mean 2.6) were treated. Treatment dose included FSR from 450 to 900 cGy (mean 644.2) weekly times 4 and concurrent Taxol in escalating doses from 80 mg/m^2.

Follow-up ranged from 1.4 to 7.9 months (mean 4.5). Of 17 pts with follow-up MRI, 2 (11.8%) had diminished mass, 9 (52.9) were stable and 6 (35.3%) increased. Of 6 with increased mass effects, 5 had biopsy or resection. Of these 5 undergoing subsequent pathologic evaluation, 2 showed no tumor and 2 contained tumor cells with occasional bizarre nuclei characteristic of radiation effect. The 5th had rare tumor cells at gross resection.

Early data shows FSR/Taxol is well tolerated and warrants further investigation.

269 POSTER

RADIOTHERAPY OF GERMINOMA

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Between July 84 and December 93 we irradiated 8 patients (median age 20 years) with histologically confirmed germinoma with a uniform protocol. The aim was the reduction of late sequelae by use of a low dose per fraction. Whole brain and neuroaxis received 30 Gy, the tumor region was boosted to 45 Gy (single dose 1.5 Gy). No additional treatment was given. Median follow-up is >6 years. In each case a complete remission was achieved. No local or distant relapse occurred. Overall median survival is 77 months. One patient died after 68 mo. from progressive brain atrophy (without evidence of disease, another one developed a moderate mental retardation. The intellectual function of 6 patients remained unchanged. No growth retardation occurred. Fertility was not assessed definitely in most of the cases. *Conclusion:* Local control and survival

pts, SIOP II 12 pts, UKCCCSG/PNET 5 pts, and 2 otherwise; 22 pts had no CT.

Five and 10 year actuarial survival (S5 and S10) are 66% and 60%, progression free S5 64%. Only 2 factors were related to S: LM-, S5 74%, vs LM+, S5 11%, ($P = 0.0006$) and interval between SR and RT: <2 mo (56 pt), S5 75%, >2 mo (24 pt) S5 46%, S10 23% ($P = 0.0013$). All 24 pts had CT, in 15 pts starting <28 days from SR, in 8 pt between 29–35 days, and in 1 pt at 44 days, due to postoperative problems.

Conclusion: The main prognostic factors were leptomeningeal metastases, and interval between SR and RT.

271 POSTER

RADIOTHERAPY IN THE MANAGEMENT OF OPTIC PATHWAY GLIOMAS

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We reviewed 35 patients with optic pathway gliomas treated at our department with radiotherapy (RT) alone (25 patients) or with postoperative RT (10 patients). Six patients in the RT alone group had optic nerve tumors and 19 had chiasmal tumors. In the subtotal surgery plus RT (STS-RT) group one patient had an optic nerve tumor and nine had chiasmal tumors. The RT alone group included 9 new cases with neurologic ± visual deficits, 12 new cases with significant visual deficits, 2 relapsed tumors, and 2 cases that had progressed during observation. The STS-RT group included 2 new cases with neurologic ± visual deficits, 5 new cases with significant visual deficits, 2 patients with relapsed tumors and one patient who had progressed during chemotherapy.

The 10-year actuarial progression-free survival rate (10-y PFS) was 86% for patients with optic nerve gliomas and 41% for patients with chiasmal tumors. The 10-year actuarial survival rate (10-y S) was 75% for patients with optic nerve gliomas and 51% for patients with chiasmal gliomas.

PFS and S rates were significantly lower in infants (10-y PFS: 19%; 10-y S: 33%), in patients with neurologic deficits (10-y PFS: 17%; 10-y S: 25%), in those with increased intracranial pressure (10-y PFS and 10-y S: 9%), and in patients with depression of consciousness (10-y PFS and 10-y S: 17%). Treatment modality did not influence the outcome but radiation doses ≤ 49 Gy were associated with significantly lower PFS and S rates.

272 PUBLICATION

PRELIMINARY RESULTS OF A PROSPECTIVE EVALUATION OF ^{3}H-THYMIDINE LABELING INDEX IN GLIOMAS

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The aim of the present study is to evaluate the biological meaning and