

fusion. The treatment was designed with SmartArc with multiple arches made with Synergy. The dosage regimen used is Lagerwaard one: [RCT (20 Gy) + SIBmts (40 Gy)] / 5 frac. Positioning of the patient was checked daily with conebeam. Before starting the optimization we must be contoured 3mm ring around the calote we call follicles, and a contraction of the outer contour of 12mm we call volume CPE. We define two arcs (VMAT CCW 178 ° -60 ° and 300 ° -182 °), with the following objectives: follicles (DSEmax = 16 Gy, weight = 20; DSEmax = 5 Gy, weight = 1), brain-CPE (Dmax = 21Gy, weight = 100 and Dmin = 20 Gy, weight = 50), eyes (Dmax = 10 Gy, weight = 1). Later, we focus on separate metastases: optimization blocked prophylaxis (Optimization Type None) and create three structures: VI1 = PTV (MTS1) 5 mm VI2 = PTV (m2) 5 mm Epx = brain-VI1-VI2 . The objectives were PTVI (Dmax = 44Gy, despite Dmin = 100 and = 40 Gy weight = 50), Epx (Dmax = 30 Gy) and brainstem (Dmax = 23Gy), follicles (DSEmax = 16 Gy, weight = 20 ; DSEmax = 5 Gy, weight = 1)

Verifying treatment was performed with the Compass software, and the Matrixx detector with gamma (4%, 1 mm) conditioning.

**Results:** So far we have treated 15 patients, the differences in the images of fusion of less than 1 mm and the average correction IGRT of 1.24mm. No acute toxicity. Nor alopecia, or temporary removal,

**Conclusion:** If we consider our VMAT optimization alopecia in WBRT + SIB with eXaFrame and eXaSkin, produce optimal aesthetic results.

#### EP-1131

**Hypofractionated Radiotherapy with temozolomide in poor prognosis glioma: a retrospective study**

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**Purpose or Objective:** To describe clinical outcomes of hypofractionated radiotherapy, either in combination or not with temozolomide (TMZ) in poor performance status glioblastoma (GBM) patients

**Material and Methods:** We retrieved the charts of 96 patients treated with hypofractionated radiotherapy plus/minus TMZ for GBM at our Institution

**Results:** Patients characteristics were summarized in Table 1.

| Variables  | N (%)      |
|--|------------|
| <b>Total</b>                                     | 96         |
| <b>Gender</b>                                    |            |
| Female   | 41 (42,7%) |
| Male   | 55 (57,3%) |
| <b>Age at diagnosis ( years)</b>                 |            |
| Median   | 66         |
| Range  | 25-81      |
| ≥ 65   | 53 (55.2%) |
| <b>KPS at presentation</b>                       |            |
| < 70   | 26 (27.1%) |
| ≥ 70   | 70 (72.9%) |
| <b>Extent of surgical resection</b>              |            |
| Gross total resection                            | 4 (4.2%)   |
| Partial resection                                | 66 (68.8%) |
| Biopsy   | 26 (27.1%) |
| <b>Type of adjuvant treatment</b>                |            |
| Short-course radiotherapy alone                  | 57 (59.4%) |
| Short-course RT plus concomitant TMZ             | 7 (7.3%)   |
| Short-course RT plus concurrent and adjuvant TMZ | 12 (12.5%) |
| Short-course RT followed by adjuvant TMZ         | 20 (20.8%) |
| <b>Patients on corticosteroids</b>               |            |
| Yes  | 16 (16.7%) |
| No   | 80 (83.3%) |

Among elderly patients, 38 (71.6%) were treated with RT alone, 9 patients (16.9%) with adjuvant TMZ, while 6 patients (11.3%) with a KPS ≥70 received hypoRT plus concurrent TMZ, followed by adjuvant chemotherapy in 3 (5.6%) of these cases. The median follow up time of the entire cohort was 13.6 months (range 1-47 months). A significant improvement in KPS from baseline to the end of radiation therapy was observed in 73 patients (76%). The median overall survival time was 6.7 months, reducing to only 2.5 months and 4 months respectively in elderly and younger patients with low performance status (KPS<70). The 6 months and 1 year survival rates were respectively 56.4% and 29.1%. In multivariate analysis, concomitant Temozolomide (HR:0.38, 95% CI 0.16-0.85,  $p=0.020$ ) and adjuvant TMZ (HR:0.28, 95% CI 0.14-0.56,  $p=0.000$ ) emerged as significant indices of longer OS rates, while weaning from steroids ( $p=0.18$ ), extent of surgical resection ( $p=0.17$ ) and tumor site ( $p=0.10$ ) were not significant predictors of overall survival but showed a positive trend. Patients who received concomitant TMZ had a median survival time of 12.5 months compared with 6.3 months for those treated with RT alone ( $p=0.017$ ). Also the use of adjuvant chemotherapy resulted in improved survival compared to no sequential Temozolomide (10.8 vs 5.2 months,  $p=0.001$ ). In the elderly cohort, patients treated with adjuvant TMZ had median OS of 8.15 months as opposed to 6.4 months of those not receiving adjuvant chemotherapy ( $p=0.001$ ). A stronger impact of adjuvant TMZ has been reported in younger patients, with a median OS of 13.5 months in adjuvant TMZ group compared to 3.7 months ( $p=0.001$ ) in the other group. Moreover, younger patients receiving concurrent Temozolomide showed a significantly longer OS of 20 months compared to 5.1 months in patients not having TMZ ( $p=0.006$ ). Acute tolerance to radiotherapy was generally good. No grade 3-4 acute toxicity was observed.

**Conclusion:** Our findings seem to suggest that frail elderly patients with KPS at baseline < 70 do not benefit of an active treatment and could be carefully offered best supportive care. In the presence of a good functional status and a wide surgical resection, patients older than 65 years may take advantage of hypo-fractionated radiotherapy, followed by adjuvant TMZ. In younger patients with poor performance status, the significant survival gains obtained with combined modality treatment suggest that a maximum resection followed by combined radiation and chemotherapy should be recommended.

#### EP-1132

**Application of IMRT technique in treatment of malignant gliomas: assessment of treatment tolerance**

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**Purpose or Objective:** Assessment of tolerance of combined modality therapy of patients with malignant gliomas irradiated using IMRT technique. We compared dose distribution in IMRT and conformal 3D treatment plans.

**Material and Methods:** Between 2009 and 2013 in the Oncology Center in Krakow 60 patients with malignant gliomas received combined modality treatment. Mean age was 53 years (range 24-72 years). All patients were in good performance status (WHO 0-1). There were 48 patients with glioblastoma multiforme and 12 with anaplastic astrocytoma. 48 patients underwent complete resection and 12 partial resection. Patient were irradiated using IMRT technique with a total dose of 60Gy in 30 fractions. All patients concurrently received temozolamide in the dose of 75mg/m2. In all patients we performed additional plans using 3D conformal