research project as clinical data, imaging features and quality of life evaluation.  

Conclusions: The creation of a formal ontology is the starting point to share and collect data from multiple datasets. It allows to obtain a clear and a common interpretation of concepts, to report information in standardized large database. Along these lines the multi-professional team has in use a suitable support to implement decision support system based on predictive models.

EP-1354
Impact of evaluation timing in determining patterns of failure in glioblastoma
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Purpose/Objective: To determine patterns of failure (POF) and survival outcomes in newly-diagnosed glioblastoma (ND-GBM) patients treated on prospective phase I and II clinical trials using standard chemoradiotherapy in combination with novel chemotherapy.

Materials and Methods: POF of 77 patients with ND-GBM enrolled in prospective clinical trials were reviewed. Patients received the current standard of care, including surgical debulking, conformal radiation therapy (RT), and temozolomide, as well as an investigational chemotherapy agent (everolimus, erlotinib, or vorinostat). Patients received follow-up MR imaging per protocol at 2-month intervals following treatment to evaluate response. Contrast enhancement (CE) from T1-weighted post-contrast MRI scans was used to define each recurrence volume at the time of progression (RecVolp). Additionally, the first suspicious scan containing new or increased CE was used to define the initial recurrence volume (RecVol). MRI scans were registered to the RT planning CT and dose volume histograms were calculated for each RecVol. POF at the time of progression (POFp) and initial indication (POF i) were characterized by the percent volume encompassed within the 95% dose region as central (V95 ≥ 95%) or non-central (V95 < 95%). Here, POFp and POF, of each patient were categorized as central only, non-central only, or both central and non-central.

Results: Of the collective patient cohort, POF appeared to become increasingly non-central and multifocal with time. Recurrence with a non-central component increased from 14% to 27% (p = 0.07) and multifocal recurrence increased from 6% to 16% (p = 0.12) from the time of initial indication to progression, respectively. POF depended on the novel chemotherapy agent given. POF were (94% central, 6% non-central, 0% both) for erlotinib, (79%, 6%, 21%) for everolimus, and (77%, 18%, 5%) for vorinostat patient cohorts. Patients with unmethylated MGMT promoter had a higher percentage of multifocal recurrence (40%) compared to those with methylated MGMT promoter (0%) at the time of progression (p = 0.01). The overall median PFS, PFS9, and OS were 4.5, 8.6, and 17.4 months, respectively. Survival outcomes based on the novel chemotherapy agent given were not significantly different.

Conclusions: POF for this ND-GBM cohort treated with novel chemotherapy agents were predominantly central, but were influenced by the time point of analysis. POF of the overall cohort were increasingly non-central at progression as compared with initial progression, suggesting that recurrence originates from the central region. POF differed between novel agents despite similar survival outcomes. Robust and properly-timed dosimetric POF analysis may be helpful to evaluate biologic aspects of novel therapeutic agents.

EP-1355
How can low-dose fractionated radiotherapy change outcome in unrespectable GBM? Analysis between two schedules
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Purpose/Objective: To compare two schedules of hypofractionation radiochemotherapy in naive unrespectable GBM in terms of toxicity, response and survival: the first one was followed by low dose radiation therapy (Hypo-RT-CT), in the second schedule no low dose radiation therapy was administered (Hypo-RT-CT).

Materials and Methods: Patients (KPS > 70, age >18 years) underwent biopsy or with gross residual tumor after surgery were enrolled in these two studies. In the first study (Hypo-RT-CT), patients received hypofractionated radiotherapy (35 Gy in ten fractions) combined with Temozolomide (75 mg/mq from the start to the end of RT); in the second study (Hypo-RT-CT+LDRT) patients received hypofractionated radiotherapy (30Gy in ten fractions) with concomitant Temozolomide. In both studies adjuvant Temozolomide (Stupp like) was administered but it was combined with low dose radiation therapy (40 cGy twice on day for 5 days) only in Hypo-RT-CT+LDRT study. In all cases clinical target volume (CTV) was ring enhancement with residual tumor plus 3 cm. Acute and late toxicities were evaluated according to Common Terminology Criteria for Adverse Events version 4.0. MRI was used in order to evaluate the response to the treatment, according to RECIST Guidelines. Moreover overall survival (OS) and progression-free survival (PFS) were calculated by the Kaplan-Mayer method.

Results: Forty-two patients (M/F: 25/17) were enrolled from June 2010 to May 2014. Twenty-two out of 42 patients were enrolled in Hypo-RT-CT while 20 pts in Hypo-RT-CT+LDRT study. Most of them (57%) was submitted only to a biopsy (Table 1). Two out of 22 patients (9%) of Hypo-RT-CT study presented acute toxicities G2 (seizure and headache); in Hypo-RT-CT+LDRT we recorded G2 acute toxicities in 4 (10%) patients (10%): 2 thrombocytopenia and 2 leucopenia; G3 acute toxicity was observed only in one patient. After hypofractionated radiochemotherapy, partial response (PR) and stable disease (SD) were of 22% and 40% respectively in Hypo-RT-CT study, 9% and 14% in Hypo-RT-CT+LDRT. Median follow-up was of 24 months (range 6 - 53). Median OS and 1- yrs survival were of 15 months and 75% respectively for Hypo-