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NCOG-05. RISK FACTORS FOR PROLONGED LENGTH OF STAY AND POSTOPERATIVE COMPLICATIONS IN PATIENTS WITH INTRAMEDULLARY SPINAL CORD TUMORS

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INTRODUCTION: Primary spine tumors are rare neoplasms that affect about 0.62 per 100,000 individuals in the US. Intramedullary spinal cord tumors (IMSCTs) are the rarest of all primary tumors involving the spine and can cause pain, imbalance, urinary dysfunction and neurological deficits. These types of tumors oftentimes necessitate surgical treatment, yet there is a lack of data on length of stay and complication rates following treatment. Given that treatment candidacy, quality of life, and outcomes are tied so closely to these metrics, it is important to illustrate the risk factors for prolonged length of stay and their association with post-op complications with the ultimate goal of improving patient selection and preoperative optimization. **METHODS:** The National Surgical Quality Improvement Program (NSQIP) database was queried for all patients undergoing surgery for treatment of intramedullary spinal cord tumors between 2005 and 2017. Univariate and multivariate analysis were performed to assess patient risk factor influencing prolonged length of stay and post-op complications. **RESULTS:** A total of 638 patients were included in the analysis. Pre-operative American Society of Anesthesiology (ASA) physical status classification of 3 and above (OR 1.89; p=0.0005), dependent functional status (OR 2.76; p=0.0035) and transfer from facilities other than home (OR 8.12; p<0.0001) were independent predictors of prolonged length of stay (>5 days). The most commonly reported complications were pneumonia (5.7%), urinary tract infection (9.4%), septic shock (3.8%), superficial incisional infection (5.7%), organ or space infection (5.7%), pulmonary embolism (11.3%), DVT requiring therapy (15.1%) and wound dehiscence (5.7%). **CONCLUSION:** Our study demonstrated the significant influence of clinical variables on prolonged hospitalization of IMSCt patients. This should be factored into clinical and surgical decision making and when counseling patients of their expected outcomes.

NCOG-08. BIOPSY-ONLY GLIOBLASTOMA (BO-GBM) AS A HETEROGENEOUS GROUP OF PATIENTS

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BACKGROUND: “Biopsy-only” glioblastoma is associated with a heterogeneous functional and survival outcome. It is an understudied group of patients which has been reported to represent 21% of histologically confirmed GBM in the US National Cancer Data Base. Pattern of care included radiotherapy-temozolomide (RT-TMZ) completed in 15% of patients, any other form of oncologic treatment in 60%, and supportive care alone in 25% of patients. Our objective was to explore treatment and prognosis of BO-GBM. **MATERIAL AND METHODS:** Patients with BO-GBM included in a prospective regional glioma SIRIC cohort in 2014-2017 were retrospectively reviewed for patient characteristics, MRI finding, treatment allocation and delivery. PFS and OS were analyzed. **RESULTS:** Of 535 patients included in the cohort, 449 patients were included at initial surgery, of which 158 patients (35%) underwent biopsy only. Of 158 patients, 18 were excluded for missing data leaving 139 patients for the present analysis. Fifty-four (39%) were referred to RT-TMZ, 68 (49%) considered unfit for RT received chemotherapy upfront (CT-UF), 17 (12%) were referred to palliative care. Groups differed at baseline for age (mean 60 and 68 years, for RT-TMZ, CT-UF respectively); KPS (70, 60 for RT-TMZ, CT-UF); mean tumor surface (793, 1420 mm² for RT-TMZ, CT-UF); and tumor extension (bilateral in 6.4% and 29.3% for RT-CT and CT-UF respectively). Median OS was 14 months (95% CI, 9.65-18.71) and 8 months (95% CI, 4.62-7.67) for RT-TMZ, CT-UF respectively. **CONCLUSION:** Inoperable GBM constitute a large and heterogeneous population in which one third of patients are amenable to standard of care, with survival outcome close to the one of patients who underwent surgery. Patients considered unfit for RT-CT at diagnosis exhibit a poor survival outcome. Thus, reliable criteria are needed to help selecting patients for adequate treatment while new strategies are warranted for BO-GBM unfit for RT.

NCOG-09. PREDICTIVE GERIATRIC FACTORS IN ELDERLY PATIENTS TREATED FOR IDH-MUTANT HIGH-GRADE GLIOMAS: A FRENCH POLA NETWORK STUDY

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We aimed to describe the characteristics, patterns of care and predictive geriatric factors of elderly patients with IDH-mutant (*IDHm*) high-grade gliomas (HGG) included in the French POLA network, dedicated to HGG (including 68% of *IDHm* HGG). For *IDHm* HGG patients over the age of 70 years, geriatric features were collected: G8 score items (appetite, weight loss, mobility, neuropsychological disorders, body mass index, medications, self-rated health, age), Activities and Instrumental Activities of Daily Living (ADL, IADL) scores, Charlson's comorbidity Index (CCI) and biological markers. Out of the 1433 HGG patients included in the POLA Network, 119 (8.3%) occurred in patients ≥ 70 years. Among them, 39 presented with *IDHm* HGG. Of these 39 patients, estimated G8 score was ≤ 14/17 for 16 patients (64%), ADL score was < 6 for 33.3%, IADL score was < 4 for 47% and CCI was ≥ 5 for 72%. Regarding treatment feasibility, 6 of the 19 patients treated by temozolomide prematurely discontinued chemotherapy including 2 for toxicity and 4 for progression. Five of the 10 patients treated by PCV prematurely discontinued chemotherapy, all for toxicity. In multivariate analysis, loss of mobility (p=0.018; p=0.008), severe neuropsychological disorders (p=0.005; p=0.047), body mass index < 21 kg/m² (p=0.002; p=0.006) and ADL score < 6 (p=0.002; p=0.01) were significantly predictive of poor PFS and OS. Then we generated a specific brain geriatric score including these four items with a sensibility, specificity and AUC for long term survivor (≥ 48 months) of 100%, 83% and 0.948 respectively. Using a cutoff of < 10/13, this score was significantly correlated to PFS and OS (p<0.001 both). In conclusion, geriatric predictive factors may contribute to the elderly management improvement: the brain geriatric score must now be validated in a prospective independent cohort including *IDHm* and *IDHwt* elderly patients.

NCOG-10. RADIATION THERAPY CAN BE SAFELY DEFERRED IN OLIGODENDROGLIOMAS

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Deferring multimodal aggressive therapies in young patients to delay treatment-induced toxicity without jeopardizing long-term outcome would be of great benefit to our patients. After IRB approval, we retrospectively reviewed 80 confirmed IDH mutant and 1p19q codeleted oligodendrogliomas treated at one institution between 2005 and 2020. Median follow-up was 5 (range 1-26) years. All patients underwent maximal safe resection, followed by observation with routine imaging (n=28), chemotherapy alone (n=27), or radiation with chemotherapy (n=25) as initial upfront therapy. Median progression free survival was 36 (range 1-203), 54 (range 1-306), and 57 (range 4-281) months, respectively. Median overall survival was not reached, with 85% (67/80) alive, 8 on treatment and 59 stable off therapy. Among 35 patients who died or were followed for 10 years, median PFS was 12, 15, and 10 years for observation (n=9), chemotherapy (n=11) and chemoradiotherapy (n=15), with deaths or KPS below 50 in 3, 6, and 8, respectively. Three deaths in the observation group occurred 12, 12 and 17 years after diagnosis; one at 95 years old and another tumor-unrelated. Among 44 patients eventually receiving radiation, 15 suffered toxicity, including pathologically proven necrosis (n=6), cognitive decline with KPS<50 (n=5), memory loss with KPS > 50 (n=3), and optic neuropathy (n=1). Myelosuppression from PCV was more pronounced after chemoradiation than in the upfront setting. Temozolomide after PCV chemotherapy was well tolerated. Long term follow-up of oligodendroglioma patients is challenging, but essential in determining late toxicities and treatment efficacy. Long-term results of European and North American multicenter cooperative group trials contradicted earlier publications reporting no benefit from early chemotherapy. Some management practice guidelines established a half-century ago persist (i.e., administer radiation therapy early), despite potentially crippling late effects. Deferring upfront radiation therapy is safe, less toxic, and equally efficacious in codeleted oligodendrogliomas.