lengthening survivorship of metastatic melanoma (MM) patients in the immunotherapy era. Stereotactic radiosurgery (SRS) and immune checkpoint inhibition (ICI) are both effective in the management of MBM and, when combined, 12-month local control rates of >85% and overall survival (OS) >80% have been reported.[4,5] Recent local analysis of patients treated at our tertiary SRS referral centre has revealed even greater outcomes in this patient cohort. This study aimed to compare the outcomes of patients with MBM treated with concurrent SRS and ICI compared to the overall metastatic melanoma cohort, to elucidate whether the addition of SRS to ICI may improve disease control outside of the brain as well as within. MATERIAL AND METHODS: A retrospective analysis of our local SRS database and an ARIA ePrescribing database search was performed to identify a cohort of patients treated with concurrent SRS and ICI for MBM, as well as a control cohort of MM patients who received ICI alone, over a 4 year period until February 2020. The primary endpoints were the extracranial progression free survival (PFS) and overall survival (OS) at 12 months. Secondary endpoints were the median PFS (mPFS) and OS (mOS). Kaplan-Meier curves and survival statistics were generated using SPSS v26. RESULTS: A total of 34 MBM from 19 patients were identified in the SRS+ICI group and there were 200 patients in the control group. The minimum follow up was 12 months. The median patient age, duration of ICI and use of combination ICI favoured the SRS+ICI group. The number of sites of extracranial disease pre-ICI and overall anti-PD-1 usage was well matched. In the SRS+ICI group, there were no cases of extracranial progression and no deaths within 12 months. In the control group, the 12-month PFS and OS rates were 50.5% and 77.5% respectively. In terms of mPFS, this was not reached (estimated 37.6 months) in the SRS+ICI group, versus 13.4 months in the control group (log rank test, p=0.001). In terms of mOS, this was not reached in the SRS+ICI group, versus 55.8 months in the control group (log rank test, p=0.016). CONCLUSION: We demonstrate improved extracranial disease control and survivorship amongst metastatic melanoma patients who develop brain metastases and are treated with concurrent SRS and ICI compared to those who do not. The outcomes of our control cohort are comparable to the 4-year follow up of the CheckMate 067 trial (n=945),[6] which strengthens the validity of the statistical comparisons made in this study. The improved extracranial disease control seen when SRS and ICI are combined in the treatment of MBM questions whether an abscopal effect may be at play, and therefore further accents the utility of SRS in MBM beyond that of local control alone. This could influence management in cases of borderline decisions for SRS.

P14.30 VOXELWISE ANALYSIS OF SPATIAL DISTRIBUTION OF POSTOPERATIVE ISCHEMIA IN DIFFUSE GLIOMA

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BACKGROUND: Surgical treatment of diffuse glioma is performed to reduce tumor mass effect and to pave the way for adjuvant (chemo)radiotherapy. As a complication of surgery, ischemic lesions are often found in the postoperative setting. Not only can these lesion induce neurological deficits, but their volume has also been associated with reduced survival time. Prior studies suggest areas with a singular vascular supply to be more prone to postoperative ischemic lesions, although the precise cause is yet unknown. The aim of this study was to explore the volumetric and spatial distributions of postoperative ischemic lesions and their relation to arterial territories in glioma patients. MATERIAL AND METHODS: We accessed a retrospective database of 144 adult cases with WHO grade II-IV supratentorial gliomas, who received surgery and postoperative MRI within 3 days in 2012–2014. We identified 93 patients with postoperative ischemia, defined as new confluent diffusion restriction on DWI. Ischemic lesions were manually delineated and spatially normalized to stereotaxic MNI space. Voxel-based analysis (VBA) was performed to compare presence and absence of postoperative ischemia. False positive results were eliminated by family-wise error correction. Areas of ischemia were labeled using an arterial territory map, the Harvard-Oxford cortical and subcortical atlases and the XTRACT white matter atlas. RESULTS: Median volume of confluent ischemia was 3.52cc (IQR 2.15–5.94). 23 cases had only ischemic lesion in the left hemisphere, 46 in the right hemisphere and 24 bilateral. Median volume was 3.08cc (IQR 1.35–5.72) in left-sided lesions and 2.47cc (1.01–4.24) in right-sided lesions. Volume of ischemic lesions was not associated with survival after 1, 2 or 5 years. A cluster of 125.18cc was found to be significantly associated with development of postoperative ischemia. 73% of this cluster was situated in the arterial territory of the right middle cerebral artery (MCA), limited by the border of the posterior cerebral artery (PCA), and the watershed area between the right MCA and the right anterior cerebral artery (ACA). Significant areas were located in the frontal lobes, spanning into the right temporo-occipital region, and predominantly included right and left thalamus, caudate nucleus, putamen, pallidum, as well as right temporal gyri and insular cortex, and parts of the right corticospinal tract, longitudinal fasciculi and superior thalamic radiation. CONCLUSION: We found slightly more and larger ischemic lesions in the right than left hemisphere after glioma resection. A statistically significant cluster of voxels of postoperative ischemia was found in the territory of the right MCA and watershed area of the right ACA. Exploration of the spatial distribution of these lesions could help elucidate their etiology and form the basis for predicting clinically relevant postoperative ischemia.

P14.31 BETWEEN HOSPITAL VARIATION IN TIMINGS TO MULTIDISCIPLINARY GLIOBLASTOMA CARE IN THE DUTCH BRAIN TUMOR REGISTRY

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BACKGROUND: Delay in cancer care may adversely affect emotional distress, treatment outcome and survival. Optimal timings in multidisciplinary glioblastoma care are a matter of debate and clear national guidelines only exist for time to neurosurgery. We evaluated the between-hospital variation in timings to neurosurgery and adjuvant radiotherapy and chemotherapy in newly diagnosed glioblastoma patients in the Netherlands. MATERIAL AND METHODS: Data were obtained from the nation-wide Dutch Brain Tumor Registry between 2014 and 2018. All adult patients with glioblastoma were included, covering all 18 neurosurgical hospitals, 28 radiotherapy hospitals, and 33 oncology hospitals. Long time-to-surgery (TTS) was defined as >3 weeks from the date of first brain tumor diagnosis to surgery, long time-to-radiotherapy (TTR) as either >4 or >6 weeks after surgery, and long time-to-chemotherapy (TTC) as either >4 or >6 weeks after completion of radiotherapy. Between-hospital variation in standardized rate of long timings was analyzed in funnel plots after case-mix correction. RESULTS: A total of 4203 patients were included. Median TTS was 20 days and 52.4% of patients underwent surgery within 3 weeks. Median TTR was 20 days and 24.6% of patients started radiotherapy within 4 weeks and 84.2% within 6 weeks after surgery. Median TTC was 28 days and 62.6% of patients received chemotherapy within 4 weeks and 91.8% within 6 weeks after radiotherapy. After case-mix correction, three (16.7%) neurosurgical hospitals had significantly more patients with longer than expected TTS. Three (10.7%) and one (3.6%) radiotherapy hospitals had significantly more patients with longer than expected TTR for >4 and >6 weeks, respectively. In seven (21.2%) chemotherapy hospitals, significantly less patients with TTC >4 weeks were observed than expected. In four (12.1%) chemotherapy hospitals, significantly more patients with TTC >4 weeks were observed than expected. CONCLUSION: Between-hospital variation in timings to multidisciplinary treatment was observed in glioblastoma care in the Netherlands. A substantial percentage of patients experienced timings longer than anticipated.

P14.32 PATTERNS OF INVASION IN GLIOBLASTOMA HAVE UNIQUE RADIOLOGICAL FEATURES, VARIED RESPONSE TO RADIOTHERAPY AND LONG TERM OUTCOMES

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BACKGROUND: To assess the correlation of the three patterns of invasion of Glioblastoma (GB) with the respective MRI features, response to radiotherapy and disease free survival MATERIAL AND METHODS: Histopathology of 62 patients with Glioblastoma who had undergone maximal safe resection (MSR)/ stereotactic biopsy (STB) & referred for adjuvant therapy was reviewed to assess the pattern of invasion. Three patterns were observed-single cell infiltration (pattern 1), perineuronal satellitosis (pattern 2) and vessel cooption (or perivascular spread, pattern 3), majority also had diffuse infiltration pattern in the background. The pre and post operative MRI scans were utilized for RT planning of 3DCRT/ IMRT/ VMAT, the modality de-