OS02 SYMPTOM SCIENCE AND MANAGEMENT

OS02.5.A. ALZHEIMER-TYPE NEUROPATHOLOGICAL CHANGES IN Glioblastoma-adjacent Cortex

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BACKGROUND: Glioblastoma (GBM) is an aggressive type of brain cancer that is prevalent and fatal in the elderly. Age is not only the most common risk factor for brain cancer but also for neurodegenerative diseases, and previous studies have indicated an excess risk of co-occurrence of both diseases. Here, we aim to map Alzheimer (AD)-related pathology in GBM-adjacent cortex. MATERIAL AND METHODS: To this end, we have screened a cohort of 99 individuals with 200 tissue samples comprising tumor and adjacent cortex, including longitudinal samples in 13 patients. The samples were provided by the Division of Neuropathology and Neurochemistry, Medical University of Vienna from 2002 to 2021. Age and tumor location were abstracted from clinical data where available. All samples were stained for A-beta, tau-AT8 and Neun using immunohistochemistry. Whole slide scans were segmented and protein density quantified with QuPath. Further statistical analyses were conducted with R. Tau pathology was recorded as neurofibrillary tangles, neurit thread, and astroglial pathology. Likewise, amyloid pathology was assessed as plaques and/or cerebral amyloid angiopathy (CAA). For both proteins, anisotropy, i.e., layer-specific, tumor-, age-, mild, moderate, and severe. RESULTS: In the total cohort, median age was 67.5 ys (range 20-92 ys), the female-to-male ratio 0.68. Overall 44.4 % (n=44/99) showed any type of A-beta and/or tau pathology, which was strongly correlated with age (R2=0.26, p<0.001). Among them, 50.8 % (n=24/47) showed combined pathology, while 23.5 % (n=11/44) only tau pathology. A-beta pathology comprised plaques in 74.4 % (n=29/39) and CAA in 28.2 % (n=11/39). Consistent with the spatiotemporal evolution of AD, neurofibrillary tangle load was highest in the temporal lobe (42.9 % n=21/49), while plaque load was most prevalent in the occipital lobe (62.5 % n=5/8). This pattern was accentuated in patients above age 65, while it reversed in those below age 65. Over time, the AD-type pathology increased in 38.4 % (n=5/13) accentuated in patients above age 65, while it deviated in those below age 65. Over time, AD-type pathology increased in 38.4 % (n=5/13). CONCLUSION: Collectively, our results establish frequent co-occurrence of Alzheimer disease neuropathological changes in the GBM-adjacent cortex. They prompt further investigation of shared pathogenic mechanisms and seek to raise awareness for synergistic effects on cognitive decline.

OS02.6.A. LACOSAMIDE IN MONOTHERAPY IN BRAIN TUMOUR-RELATED EPILEPSY (BTRE): RESULTS FROM AN ITALIAN MULTICENTRE RETROSPECTIVE STUDY

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BACKGROUND: Lacosamide (LCM) is a third-generation anti-seizure medication (ASM) approved for focal onset epilepsy in patients aged 24 years. Previous studies have reported an efficacy of LCM as add-on treatment to brain tumour-related epilepsy (BTRE). To data on the literature focusing on lacosamide used in monotherapy to treat BTRE. In our retrospective study we investigated efficacy and tolerability of LCM in monotherapy in a multicentre national cohort of primary brain tumour patients. MATERIALS AND METHODS: Nineteen patients who were treated with LCM in monotherapy were collected from 12 Italian Centres (mainly involved in neuro-oncology) or in epilepsyology. Main inclusion criteria were diagnosis of primary brain tumour; at least two focal-onset seizures in the disease course; LCM used either as primary or secondary monotherapy after withdrawal of previous ASMs. For each patient, we evaluated seizure freedom at 3 and 6 months (primary endpoints), side effects and drop-out rate (secondary endpoints). RESULTS: We collected 132 patients. The majority of patients had a diagnosis of diffuse gliomas, being those with lower-grade glioma 66 (50.0%) and those with glioblastoma 33 (25.0%). Overall, LCM led to seizure-freedom in 64.4 % of patients at 3 months and 55 % at 6 months. Patients who used two or more ASMs before LCM had a worse seizure control than patients in monotherapy with LCM as first-choice. In 14 patients, we observed seizure control despite tumour progression in a new magnetic resonance (MRI). Multivariate analysis showed that gross-total resection at diagnosis and use of steroids were significantly associated with higher seizure freedom rate at 6 months. Side effects were mainly mild grade 1-2 (depending on the AUC:CAE classification). Tumour survival rate was low (1.5%). The main side effects were dizziness and somnolence. CONCLUSION: This is the first study on the role of LCM in monotherapy in BTRE. The study has shown a good efficacy and tolerability of LCM with more than three-quarters of patients becoming seizure-free at a low rate of drop-out. Further studies are needed to confirm these preliminary data in a prospective manner, adding quality of life and neurocognitive functions as endpoints.

OS02.7.A. THE ROLE OF EPILEPSY IN ELDERLY PATIENTS WITH Glioblastoma: AN austrian multicenter analysis

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BACKGROUND: Higher age is a significant predictor of poor outcome in glioblastoma multiforme (GBM) patients. Thus, acquisition of a better understanding of additional prognostic factors in these often- frail patients is of utmost importance. Epileptic seizures correlate with improved overall survival in GBM, however, the exact impact of epilepsy with GBM on patient outcome parameters is poorly defined. Furthermore, persisting postoperative epilepsy significantly influences the patients’ quality of life (QoL). This study aims at specifically evaluating the impact of epilepsy in elderly GBM patients. MATERIAL AND METHODS: We analysed 141 consecutive patients with GBM from 15 neurological centers retrospectively analyzed all elderly (≥65 years) GBM patients with de-novo tumors, who underwent tumor resections between 09/2006 and 07/2021. Epidemiological, histopathological and survival data were gathered from patients’ electronic charts and the presence of epilepsy preoperatively or during follow-up. RESULTS: 391 patients (55% males, 45% females) with a median age at surgery of 73 years (Interquartile Range (IQR) 68.3-77.5) were analyzed. The mean predicted OS was recorded to 9.24 months (95% CI 9.1-11.6) in our cohort. 93/391 patients (24%) suffered from preoperative epilepsy, 17/18% patients still suffered from epilepsy after tumor resection and 10 patients who were treated with ASMs for their epilepsy at the time of surgery. Thus, 24% (n=95) patients with presurgical epilepsy and 24% (n=93) patients with preoperative epilepsy were diagnosed with epilepsy presurgery, who were treated with ASMs at least 4 weeks prior to surgery. 34 patients (8.7%) suffered from preoperative or during follow-up. The study has shown a good efficacy and tolerability of LCM with more than three-quarters of patients becoming seizure-free at a low rate of drop-out. Further studies are needed to confirm these preliminary data in a prospective manner, adding quality of life and neurocognitive functions as endpoints.