OS2.3 RELEVANCE OF NEUROFIBROMATOSISTYPE 1 AND SCHWANNOMOTOSIS IN EXTRAMEDULLARY SPINE TUMORS

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BACKGROUND: Extramedullary spine tumors represent two-thirds of all primary spine neoplasms. Approximately half of these are peripheral nerve sheath tumors, mainly neurofibromas and schwannomas and neurofibromatosis or schwannomatosis can be suspected. Given the rarity of this condition the clinical genetic and radiological features remains to be better define. The aim of this study was to characterize the clinical, radiologic presentation of patients with widespread spinal disease and to identify gene mutation. MATERIAL AND METHODS: We selected patient with a at least: intradural extramedullary, or extradural intraspinal (tumor within the spinal canal), or extradural paraspinal (tumor at the neural foramenor extending outward into adjacent tissues) neoplasms and no other tumors such as meningiomas in the spine at spine MRI. Patients' DNA were analyzed by Targeted NGS by means a custom gene panel including NF1, NF2, LZTR1, SMARCB1 genes. RESULTS: 63 patients were identified31 had few isolated tumors, involving spinal roots (Multiple Neurofibromas Few Spinal Root, MNFSR), 18 had bilateral neurofibromas involving all spinal roots. 14 had a single lesion; 10 cases were familiar and 53 sporadic. Genetic analysis showed NF1 gene mutations (in prevalence splicing or missense) in 49 cases LZTR1 mutations in 3 and in the others 11 no mutation or deletion was detected. Pain was the hallmark symptom in patients with LZTR1 mutations, while all familial cases all had NF1 diagnosis. About 50% of them had few cutaneous manifestations. CONCLUSION: In patients with extramedullary spine tumors is important to look for signs of neurofibromatosis or schawannomatosis and if there are present genetic testing should be performed.

OS2.4 USING FINESA MRI FOR EARLY DETECTION OF SPINAL METASTASES

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BACKGROUND: Early detection of spinal metastases is important to facilitate early management and delay vertebral fracture or metastatic cord compression. The gold standard investigation to detect spinal metastasis is MRI, but it cannot quantify the metastasis and prognosis is poor due to its late presentation. Fine Structural Analysis (FineSA) is a custom software added to MRI using a non-radiating proprietary data acquisition technique. It analyses data at a resolution 10 times higher than MRI to quantify the trabecular microstructure which has the potential to enable early detection and management of vertebral fracture or metastatic cord compression. MATERIAL AND METHODS: 18 patients with known, symptomatic spinal metastases from Swansea Bay University Health Board and 11 age and sex-matched control subjects were recruited to have a FineSA MRI Spine. FineSA analysed and produced a structural spectrum of a defined area from the metastatic lesion. Statistical comparisons were made with the control data by extracting several metrics from the spectra, which were represented as an index score relative to a normal range. RESULTS: Preliminary results using One Way ANOVA show a highly significant difference in trabecular microstructure between patients with spinal metastases and the age and sex-matched control patients, where $p = 3.99e^{-11}$. CONCLUSION: Preliminary results show that there is a highly significant difference between metastatic and control bone structure. Follow-up of the patients after one year will look at if fracture has occurred and whether there is a difference in the FineSA index score between the two groups. FineSA has the potential to be used to identify which metastatic lesions are most likely to be symptomatic and fracture, so that targeted radiotherapy can be done before symptoms are either present or intrusive.

OS3 VALUE OF PATIENT-REPORTED OUTCOMES

OS3.1 ANTIEPILEPTIC DRUGS AND THEIR ASSOCIATION WITH DEPRESSION, ANXIETY AND SUBJECTIVE COGNITIVE IMPAIRMENT IN GLIOMA PATIENTS

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BACKGROUND: Epileptic seizures are a common symptom in glioma patients and generally treated with antiepileptic drugs (AEDs), which are considered to have the potential of mood-modulating and neurocognitive adverse effects. This observational study aimed to assess the independent association between AEDs and depression, anxiety and subjective cognitive impairment in glioma patients. MATERIAL AND METHODS: Use of AEDs was defined as a categorical variable (none or at least one). Depression and anxiety were measured with the Hospital Anxiety and Depression Scale, while subjective cognitive impairment was measured with the Medical Outcomes Study-Cognitive Functioning Scale. Hierarchical multivariable logistic regression analyses were performed for each outcome separately. Besides use of AEDs, other confounding variables such as seizure severity and Karnofsky Performance Status score were included. Analyses were repeated for the two most commonly prescribed AEDs separately, levetiracetam or valproic acid, with the same confounding variables. RESULTS: A total of 272 grade II-IV glioma patients were included in the study, of which 68% used at least one AED. Prevalence of depression was 10% for patients taking 0 AEDs and increased significantly to 21% (adjusted Odds Ratio [aOR]=2.4 [95%Confidence Interval {CI}=1.0–5.8]) for those taking ≥1. Prevalence was not significantly different between patients using 0 and using ≥1 AEDs for both anxiety (19% versus 26%, aOR=1.1 [95%CI=0.6–2.2]) and subjective cognitive impairment (16% versus 21%, aOR=1.2 [95%CI=0.6–2.5]). Although prevalences of depression (13% versus 23%, aOR=1.6 [95%CI=0.8–3.2]) and anxiety (17% versus 31%, aOR=1.8 [95%CI=0.9–3.3]), but not subjective cognitive impairment (20% versus 18%, aOR=1.7 [95%=0.4–1.4]), differed significantly between patients not using and using levetiracetam, these associations were not independent. No significant differences were found between patients not using and using valproic acid on the three outcome measures. CONCLUSION: After adjustment of confounders, only depression was associated with the use of AED's. No such relation was found for anxiety or subjective cognitive impairment. Use of levetiracetam or valproic acid were not independently related to depression, anxiety or subjective cognitive impairment.

OS3.2 RELEVANT TOPICS FOR BRAIN TUMOR PATIENTS IN THE DISTRESS THERMOMETER, FIRST RESULTS OF THE HEAT STUDY

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BACKGROUND: Patient-centered assessments and disease-adjusted patient-reported outcome measures (PROMs) are crucial in neuro-oncology. The Distress Thermometer (DT) is a well-accepted screening tool for cancer patients including a numerical rating scale (1–10, cut-offs indicating relevant distress ≥4–6) and 40 items describing possible problem categories (emotional, social, physical, practical and spiritual). The aims of the first part of the "Adaption of the Distress Thermometer in patients with intracranial tumors" (HEAT) study were to evaluate the importance and relevance of items for brain tumor patients (BTP). MATERIAL AND METHODS: The multicenter study included three University hospitals. After given informed consent patients were prospectively evaluated either during their hospital stay or in the outpatient setting using DT as well as the 40 item problem list. Clinical and demographic data were recorded. We performed an analysis regarding frequency of indicated topics and evaluated their relevance for patients' psychosocial well-beings via Pearson correlations with the DT score. RESULTS: Data of n = 670 patients were analyzed. Mean age was 52 years (SD = 14, range 18–81), most of the patients harbored WHO°I tumors (37%) and WHO°IV tumors (28%). Male to female ratio was 1:1, 17% were assessed preoperatively, 40% postoperatively and 43% during adjuvant therapy or follow-up. 14% of the patients faced a tumor recurrence at assessment. Mean score of DT was 5.23 (SD = 2.9, range 0–10). Applying a cut-off score ≥ 4, 61% reported distress (≥ 5: 46% and ≥ 6: 37%). Regarding the relevance of the problem list for BTP, emotional problems (e. g., anxiety, depression) were most frequently reported. A total of 14/40 (35 %) of items were endorsed by less than 10% of patients. With exception of emotional problems all areas were reflected: practical problems (e. g., problems with child care or insurance), social problems (e. g., problems with children), spiritual concerns (e. g., loss of faith), and physical problems (e. g., breathing, fever). However, some of these rarely reported problems were of relevance for patients' psychosocial well-being as indicated by significant correlations between the respective item and the DT score. This was, for example, the case for problems with childcare (r = .106; p < .01) or breathing (r = .125; p = .001). CONCLUSION: Tools developed for cancer patients do not yet perfectly reflect all needs of BTP. Based on our data, we suggest further adjustments of available tools. Yet, it should be taken into account that subgroups of BTP may require different problem lists in the DT, as we observed some topics (e.g. breathing) probably be related to BTP under chemotherapy or steroids only. Moreover, our data require cross-cultural