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BACKGROUND: Glioblastoma (GBM) is the most common malignant brain tumour in adults with a median survival from progression of 8 months. A recent phase 1 study of temozolomide (TMZ) and 1:1 CBD:THC (Sativex) offers evidence of efficacy in patients with recurrent GBM (NCT01812603). METHODS: All patients receiving TMZ & Sativex (75mg/m^2 daily d1 – 21 q28; Sativex continuously) for relapsed GBM or grade 3 astrocytoma at our centre were identified. Patient, tumor and treatment characteristics were recorded, and response based on sequential MRI scans using modified RANO criteria assessed. RESULTS: 13 patients were treated over 18 months. The median age was 56; 69% were male. All had received initial chemoradiotherapy (12 patients: 60 or 59.4Gy/30–33#; 1 patient: 45Gy/15#). 6 patients underwent reresection at recurrence. 4 patients were treated at first progression, 7 at second progression, and 2 at third or later progression. The median number of cycles of TMZ and sativex was 2. The combination treatment was tolerated well by all patients treated, with no Grade 3 or 4 toxicities, the only complaints being of discomfort in mouth after spray and 'spaced out feeling'. Patients stopped treatment due to evidence of progressive disease on sequential MRI sign or physical deterioration. Median Overall Survival (OS) from initiation was 5.9 months (177 days); Progression Free Surival (PFS) at 3 months was 50%. CONCLUSION: These results highlight some discrepancies in OS in comparison to the previous trial (NCT01812603), but our patients were treated at second/ third recurrence. We agree that the combination is well tolerated.

EXPLORING THE LIVED EXPERIENCE OF A HIGH GRADE GLIOMA

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INTRODUCTION: Brain tumour patients face a variety of challenges during diagnosis and treatment. Although most treating clinicians are familiar with these, it can be difficult to obtain a comprehensive overview of which are the most common problems, which patients they affect and how to address them. METHODS: We conducted a systematic review of all work relating to the lived experience of patients and carers of a glioblastoma. We identified articles published between 2008 and 2018 these had to be published in English, using the search terms cares and patients, lived experience, glioblastoma and perspective with relative alternative terms. We excluded articles that were previous systematic reviews, included low grade/brain metastasis from another primary site and articles that combined results for patients and carers. We extracted key theme and concerns, and summarised and tabulated and developed a discussion/recommendation. RESULTS: We identified 405 potential studies. We rejected 374 after screening abstract and titles, and a further 23 on further review. This left a set of 8 unique publications. The 8 publications included were comprised of qualitative studies that explored patient and carers experience at different points in the patient pathway. The main concerns/themes identified were issues around communication specifically the shock of diagnosis, re-negotiating relationships and finally accessing support. CONCLUSIONS: This is the first systematic review that collates the lived experience of patients with high grade gliomas. It differs from the palliative care literature and from the James Lind Alliance, and is more specific than generic health needs assessments that are being used in practice.

EFFECTIVENESS OF BRAF INHIBITORS IN PATIENTS WITH BRAF V600 MUTATION POSITIVE GLIOMA: A SYSTEMATIC REVIEW

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BACKGROUND: BRAF inhibitor treatment with vemurafenib and dabrafenib have produced significant increases in median overall survival for BRAF V600 mutation-positive melanoma patients and are in wide clinical use. BRAF inhibitors have also been used in an ad hoc fashion in BRAF V600 mutation-positive glioma in a number of glioma subtypes with varying prognoses. METHODS: An electronic search was performed on MEDLINE and Embase on February 1, 2019 to identify studies of any design that reported the outcome of patients with BRAF V600 mutation-positive glioma treated with BRAF inhibitors. Data was collected for demographic information, tumour information (type and grading), BRAF mutation type, prior treatment regimens, type of BRAF inhibitor, dose and duration of treatment, best objective response, progression free survival (PFS), overall survival (OS), glioma specific symptomatic relief and adverse events. PRELIMINARY RESULTS: Seventy-nine case reports, case series and single arm cohort studies with a total of 286 patients were included. Duration of treatment was available for 197 patients and varied from 0.1 to 54 months, with 104 patients still undergoing treatment at the time of publication. Progression occurred in 158 patients (including both low-grade and high-grade glioma) at between 0.805 and 36 months following the start of treatment. 34 people died, at between 0.329 and 40.1 months following the start of treatment. CONCLUSIONS: Our systematic review shows varying clinical effectiveness of BRAF inhibitors in BRAF V600 mutation-positive glioma depending on low-grade or high-grade glioma. This evidence may inform future trials of BRAF inhibitors for glioma patients.

SEMI-AUTOMATED MEDULLOBLASTOMA SEGMENTATION AND INFLUENCE OF MOLECULAR SUBGROUP ON SEGMENTATION QUALITY

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Medulloblastoma is the most common malignant brain tumour in children. Segmenting the tumour itself from the surrounding tissue on MRI scans has shown to be useful for neuro-surgical planning, by allowing a better understanding of the tumour margin with 3D visualisation. However, manual segmentation of medulloblastoma is time consuming, prone to bias and inter-observer discrepancies. Here we propose a semi-automatic patient based segmentation pipeline with little sensitivity to tumour location and minimal user input.

Using SPM12 "Segment" as a base, an additional tissue component describing the medulloblastoma is included in the algorithm. The user is required to define the centre of mass and a single surface point of the tumour, creating an approximate enclosing sphere. The calculated volume is confined to the cerebellum to minimise misclassification of other intracranial structures. This process typically takes 5 minutes from start to finish.

This method was applied to 97 T2-weighted scans of paediatric medulloblastoma (7 WNT, 6 SHH, 17 Gr3, 26 Gr4, 41 unknown subtype); resulting segmented volumes were compared to manual segmentations. An average Dice coefficient of 0.85±0.07 was found, with the Group 4 subtype demonstrating a significantly higher similarity with manual segmentation than other subgroups (0.88±0.04).

When visually assessing the 10 cases with the lowest Dice coefficients, it was found that the misclassification of oedema was the most common source of error. As this method is independent of image contrast, segmentation could be improved by applying it to images that are less sensitive to oedema, such as T1.

FACTORS AFFECTING TREATMENT STRATEGY, COMPLETION OF PLANNED TREATMENT AND SURVIVAL IN OLDER PATIENTS WITH GLIOBLASTOMA

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INTRODUCTION: For older patients with glioblastoma (GBM), age, extent of resection, and performance status are prognostic factors. However, an international survey conducted by our Unit found that >40% of neurosurgeons use age alone to discount surgery in older (65+) patients. The aim of this study was to review management in our Unit for 65+ GBM patients, to inform future approaches. METHODS: Patients 65+ with a new GBM diagnosis in our Unit, between 2014 and 2017, were identified. Demographic data, performance status (PS), comorbidity and frailty indices, together with details of surgical/oncological management and outcome were collected. RESULTS: 78 patients were identified. 78% aged 65–74 underwent maximal safe resection, compared with 45% aged 75–84, and 10% aged 85+. Resection was undertaken in 68% PS1, 73% PS2 and 23% PS3 patients. No PS3 patient completed intended radiotherapy, compared with 79% PS1 and 74% PS2 patients. There was a significant difference in frailty scores of patients who completed scheduled oncological therapy compared with those who did not (median score 2 vs 4.5, p=0.0338).

Median survival was 10 months for patients 65–74, 4 months for aged 75 -84, and 40 days for 85+ (p<0.0167). Median survival was significantly lower for PS3 patients (44 days) compared with PS1 or 2 (9.5 months and 7 months respectively; p<0.0167). CONCLUSION: There is considerable variability in performance status and frailty of 65+ GBM patients. PS3 patients at diagnosis are very unlikely to complete oncological treatment. These factors, rather than age alone, should be used to guide management decisions.

WIRELESS BIOELECTRONICS TOWARDS TREATMENT OF GLIOBLASTOMA MULTIFORME

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