surgery, for MD and HRQoL. assessment. 115 were asked to fill a questionnaire for sexual life investigation. Clinical imaging, histomolecular features as well as cognitive functions were evaluated. Variables associated with MD:low HRQoL, and sexual life impaired were predictors and associations with HRQoL were also found in LGGs and HGGs over the course of the disease. In LGGs the effect of adjuvant treatments was prominent in determining the prevalence of MD and poor HRQoL, from the third month after surgery onward. In HGGs, MD and poor HRQoL were associated with older age. In both, cognitive deficits were associated with MD: 42% of patients showed dissatisfaction for their sexual life and decrease of sexual intercourse, which were linked to a reduction of libido (22%), astenia (39%), pharmacological therapy (23%), and weight loss (22%). Undergoing adjuvant treatments showed a lower sexual satisfaction. CONCLUSION: Overall the data suggest that worsened quality of life, Incidence of Mood disorder and worsening in sexual life affect a relevant amount of patients affected by glioma. Lack of recovery from functional deficits (language, attention/executive) and motor deficits and adjuvant therapies (especially radiotherapy) play a crucial role in determining the emergence of Mood Disorders, low HRQoL and worsened sexual life.

OS09.7.A. EXPERIENCES AND UNMET NEEDS OF GRADE 2-4 GLIOMA PATIENTS AND (HEALTH CARE) PROFESSIONALS REGARDING (RETURN TO) WORK: THE BRAINWORK STUDY


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BACKGROUND: In the Netherlands, 1,200 persons are annually diagnosed with a glioma, of whom many are of working age. Studies regarding cancer and work often exclude primary brain tumour patients, due to specific problems these patients may experience. Hence, the aim was to explore the experiences and unmet needs regarding return to work, work retention, or work discontinuation of both grade 2-4 glioma patients, and involved (health care) professionals. MATERIAL AND METHODS: Individual semi-structured interviews were performed with 24 grade 2-4 glioma patients as well as health care and occupational professionals involved in the (care) for glioma patients. Grade 2-4 glioma patients were eligible to participate if they were of working age and had an employment contract at time of diagnosis. Recruitment of patients was performed via three hospitals and via social media. The professionals were recruited via the network of researchers linked to BrainWork. Interviews were transcribed verbatim, and thematically analysed using ATLAS.ti

RESULTS: Nineteen glioma patients participated in this study (68% male, mean age 45 (SD 11), 58% grade 2, 16% grade 3, 26% grade 4). The main themes identified were: 1) impact of glioma-specific characteristics on work ability, 2) communicating about an invisible, progressive illness at work: discrepancies in perception, 3) working with a brain tumour: looking at possibilities, and 4) navigating offers of (work-related) support. Sixteen professionals were interviewed (e.g., clinical neuro-oncologist, inpatient neuropsychiatrist, occupational therapist). The key themes were identified: 1) defining the right approach: generic or specific vocational rehabilitation?, 2) work adjustments are common, but information deficiency causes delay, 3) opinions about work ability are diverse and influenced by glioma-specific characteristics, and 4) need for attention and tailored recommendations regarding glioma and work. CONCLUSIONS: Working is possible for glioma patients although they encounter glioma-specific problems, and commonly need work adjustments. These adjustments should be communicable early, to prevent employer-employee conflicts. A specific reintegration plan, including a neuropsychological assessment and a glioma-tailored rehabilitation program, is considered the most adequate approach. Open communication between the patient and the (work) environment in general is necessary to abate discrepancies in perception. Communication between health care professionals and occupational professionals should be improved to diminish differences in viewpoints. Ongoing and occupational workplaces should explore and tailored recommendations regarding glioma and work are necessary.

OS10.4.A. A MACROPHAGE-BASED DRUG DELIVERY PLATFORM FOR Glioblastoma TREATMENT

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BACKGROUND: There is an urgent need for more effective treatment strategies against gliomas. At present, even though various drugs have potent anti-tumor activity in vitro, their application in vivo is limited by ineffective delivery and systemic toxicity. Therefore, novel strategies are needed to deliver these drugs effectively and safely to the tumor site. Here, we developed an adoptive transfer strategy against malignant brain tumors utilizing macrophages that are loaded with ferritin-protein cages containing drugs or other proteins and transfer these nanocarriers to cancer cells in vitro and in vivo. MATERIAL AND METHODS: Live-cell imaging, microscopy and flow cytometry were used to track the transfer of ferritin cages from loaded macrophages to human or mouse glioma cells. Co-cultures of glioma cells and macrophages loaded with ferritin-drug cages were used to study the anti-glioma activity in vitro and orthotopic immunocompetent mouse glioma models were used to study the anti-glioma activity in vivo. Affinity purification mass spectrometry (AP-MS) was used to elucidate the mechanisms of transfer by characterizing the interactome of ferritin cages within macrophages and cancer cells. RESULTS: We observed a high transfer efficiency of ferritin-cages from loaded macrophages into human and mouse glioma cells in vitro in co-culture assays and confirmed the transfer from macrophages to glioma cells also in vivo upon intravenous or intratumoral treatment of GL-261 or CT-2A glioma-bearing mice. To study the anti-glioma activity with therapeutically active payloads, we loaded murine/macrophages with ferritin cages carrying cytotoxic payloads. Co-culture of these loaded macrophages with murine or human glioma cells in vitro revealed a time- and concentration-dependent cytotoxicity to glioma cells. In vivo, intracranial tumor xenografts showed an adequate immunotherapy testing. Humanized mice offer new opportunities to study the interaction of immune components, which represents a bottleneck for clinical translation.

OS10.5.A. MODELING IMMUNOCOMPETENT TUMOR MICROENVIRONMENT IN Glioblastoma PATIENT-DERIVED ORTHOTOPIC XENOGRAFTS

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BACKGROUND: To date, glioblastoma (GBM) remains a fatal disease, with a median overall survival of roughly over a year. There is a crucial need of new treatment options, yet most clinical trials have failed partly due to the lack of predictive preclinical model systems. Currently, most patient-derived preclinical models suffer from the reduction or absence of immune system components, which represents a bottleneck for ideality for GBM. Humanized mice or xenografted models using immune deficiency mice (Nude, NOD-SCID, NSG) were used to study the GBM xenografts, however, this was tolerated without toxicities and conferred a survival benefit in two orthotopic murine glioma models (GL-261 and CT-2A). Interactome studies of ferritin-cage-binding proteins revealed phagocytosis and cytokines to be involved in the transfer of ferritin cages from macrophages to glioma cells. CONCLUSION: This ‘Trojan Horse’ approach constitutes a promising platform to deliver cytotoxic drugs effectively and safely to gliomas and provides a rationale for clinical translation.