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From research to practice and care for brain tumor patients

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In 2021 *Neuro-Oncology Practice* continues to provide health care professionals and clinical researchers with the newest and up-to-date information to guide the clinical practice and care for our patients and their families. I feel priviliged and honored to take over the position of Editor-in-Chief from Dr. Susan Chang, who over the past seven years nurtured and raised this offspring of *Neuro-Oncology* to become the mature and self-assured journal that it is now. With the indispensable help of ASNO, EANO, and SNO, but most of all our authors, reviewers, and readers, I will continue the editorship in the footsteps of Susan.

In this first issue of 2021, Gonzalez Castro and Wesseling (p. 4) start off highlighting the seven updates that came out since the 2016 WHO Classification of CNS tumors, which incorporated the molecular characteristics into the diagnosis of these tumors. This information, rapidly evolving since 2016, is of key importance for the prognosis and treatment of brain tumor patients and will likely come back in the fifth WHO Classification of these tumors, foreseen for 2021.

A more precise diagnosis does not end, for sure, the debate that we have in our tumor boards, during conferences, and in discussions with our patients. Fogh and colleagues (p. 11) discuss the debate in the *Neuro-Oncology Practice* Clinical Debates series, focusing on the early versus delayed treatment of newly diagnosed oligodendroglioma following surgery. More definite answers ask for randomized studies.

In low-grade glioma, seizures are a prominent symptom and may have a serious negative impact on a patient's functioning and wellbeing. Jo and colleagues (p. 40) add new information on predictors of seizures in this patient group, with male patients having a high risk for not only the occurrence, but also the intractability of seizures. Another symptom in brain tumor patients, often overlooked, is sleep disturbance, which may be linked to fatigue, neurocognitive symptoms, and depression as explored by Jeon and colleagues (p. 48). Importantly, sleep disturbance is not confined to patients, but may also arise in their caregivers.

Symptoms in children with brain tumors are mainly different from those in adults and may not be recognized early on to herald a brain tumor, as demonstrated by Yamada et al. (p. 60). Sensory symptoms (vision, hearing, smell) are likely to cause a diagnostic delay and should raise more awareness in clinicians who first meet these patients. Amongst pediatric brain tumors, diffuse intrinsic pontine glioma is a devastating disease with a dismal prognosis. Cacciotti and colleagues (p. 68) conducted a survey amongst US clinicians dealing with this disease exploring the use of re-irradiation. The lack of thus far other effective treatments for tumor recurrence will add to the high rate of re-irradiation, as demonstrated by the survey.

Radiotherapy for brain tumors may unintentionally lead to radiation necrosis, which may be successfully treated with bevacizumab, a VEGF receptor antibody. VEGF receptor inhibitors have been proven successful as anti-tumor treatment in renal cell carcinoma. Alnahhas and colleagues (p. 75) retrospectively studied if renal cell carcinoma patients treated for brain metastases with either radiosurgery or stereotactic radiotherapy were less likely to develop radiation necrosis if undergoing concomitant VEGF receptor inhibitor treatment for systemic disease. This is a challenging hypothesis that, however, could not proven.

The systematic review on cerebral vascular disease following radiotherapy for pediatric brain tumors performed by Bavle and colleagues (p. 31) provides us with up-to-date information on incidence and risk factors of these late treatment effects, at the same time underpinning the need for prospective studies.

MRI is one of our major tools in the diagnosis and follow-up of brain tumor patients. Functional MRI was used to study cognitive deficits in glioma patients prior to surgery by Schouwenaars and colleagues (p. 81), who linked functional MRI results to standard cognitive test results. Cognitive deficits proved not so much to be associated with abnormal functioning of executive brain regions, but rather with insufficient deactivation of the default mode network, interfering with normal cognitive functioning.

Apart from MRI, amino acid PET imaging has proven to be of value for diagnosis and follow-up of brain tumors. High costs of PET imaging, however, hamper its use in clinical practice. Aboian and colleagues (p. 91) demonstrate a pragmatic way to reduce costs, by combined use of the same batch of amino acid PET tracer for several patients at the same time.

Although a minor step in the treatment of brain tumor patients in general, successful everolimus treatment for subependymal giant cell astrocytoma (SEGA) is a therapeutic breakthrough and alternative to standard treatment for this limited patient category. This change in treatment is also reflected in the US national cancer database analysis performed by Ryoo et al. (p. 98).

Progress in the anti-tumor treatment of brain tumor patients has put more emphasis on survivorship issues in these patients, who now live longer, as reported in the important overview by Alemany and colleagues (p. 18). Not only do they focus on the medical aspects, such as late adverse treatment effects on the nervous system and the development of secondary tumors that negatively impact patients' functioning and wellbeing, but also on the important economic, financial, and thereby psychosocial issues of survivorship.