

Neuro-Oncological Aspects in Modern Neurosurgery of 21st Century

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Received: 22 December 2020; **Accepted:** 30 December 2020

Key Words: Neuro-Oncology ■ Brain ■ Spine ■ Peripheral Nerves ■ Tumors.

It is a great honor and privilege for me to serve as a guest editor for this special supplemental issue of *Acta Medica Academica* (AMA) of the Academy of Arts and Sciences of Bosnia and Herzegovina, and to compose this introductory editorial at the invitation of Academician Professor Dr. Husref Tahirovic, the Editor-in-Chief of the Journal.

The “Neuro-Oncological Aspects in Modern Neurosurgery of 21st Century” Symposium was held in conjunction with the Association of Neurosurgeons in Bosnia and Herzegovina and the South East Europe Neurosurgical Society and under the auspices of the Academy of Arts and Sciences of Bosnia and Herzegovina. The Symposium was also endorsed by the Semmes-Murphey Clinic, Memphis, TN, USA, the Department of Neurosurgery, University of Tennessee Health Science Center, Memphis, TN, USA, the Slovenian Neurosurgical Society, and the Croatian Society for Cerebrovascular and Endovascular Neurosurgery. We were very pleased to have had robust participation, discussions, and deliberations among neurosurgeons, neurologists, neuro-radiologists, physiatrists, orthopedic spine specialists, residents in training, and medical students from the United States, Germany, Slovenia, Croatia, Bosnia-Herzegovina, Serbia, Romania, Turkey, and Greece. Among the attendees were the neurosurgical authorities of the Balkans and World—department

chairmen and presidents of national and international neurosurgical associations from the region and beyond—who participated in the Symposium. Roughly half of the lectures were selected for publication by the editors of the journal and prepared by the authors. Those papers underwent strict peer-review process as appropriate for any other scientific publication in this Journal.

Neuro-oncology is an important, ever evolving part of neurosurgery (1-3). As such, it involves central (CNS) and peripheral (PNS) nervous systems (brain, spine/spinal cord, and peripheral nerve) tumors. Albeit one of the youngest medical and surgical specialties, neurosurgery enjoys an exciting and privileged role in leading the charge in basic science research on the cellular and molecular level of tumors, epidemiological and outcomes of treatment studies, all complex aspects of diagnostics, and operative and non-operative treatment, including a vast number of technical and technological features and rehabilitation. Not surprising, in this special Supplement Issue of AMA, we are honored to present some of the newest, exciting, and original contributions to the field of neuro-oncology.

Velnar et al. (4) reported an exciting and optimized protocol for glioblastoma (GBM) cell isolation from brain resection samples, with a high yield and low risk for contamination. This isola-

tion technique provides sufficient quantities of isolated cells that may be used as an important new tool for *in vitro* research. The availability of this system will permit the study of cell properties and biochemical aspects and provides the potential of therapeutic candidates for pathological disorders in a well-controlled environment. A single-center experience and outcomes in the treatment of pediatric posterior cranial fossa tumors was presented by Hodzić et al. (5), who reviewed this ever-interesting neurosurgical topic. The authors analyzed clinico-pathological characteristics, treatments, complications, and outcomes in their study population, and they presented their results in treating both common and extremely rare lesions, which will be of interest to the readership who treat children. Bosnjak et al. (6) provided an original and important technical contribution in the treatment of deep-seated lesions of the CNS. To minimize incidences of brain retraction injury, the authors reported on a technical case in which a navigated endoport system was employed with endoscope-assisted microsurgery to resect a lateral ventricle subependymoma. This relatively simple and affordable application for intraventricular and other deep-seated brain lesions will undoubtedly find its place in the treatment of complicated, deep-seated CNS pathologies. Ravnik et al. (7) reported an exceptional retrospective series of their experience using the endoscopic endonasal approach with telemonitoring to reach lesions of the clival region. The authors provided an overview of the technique and analyzed and determined the safety, risk of post-operative complications, and surgical outcomes of this approach in patients in whom pituitary macroadenoma, craniopharyngioma, metastasis, and a prepontine neurenteric cyst were removed. On the subject of treatment of similar lesions in sellar/parasellar/suprasellar tumors, Pojskić et al. (8) (Arnautović group) provided an interesting original and “outside of the box” clinical experience in combining 2 frequently conflicting approaches—microscopy and endoscopy—for the treatment of pituitary tumors. The technical nuances of this multimodal transseptal-transsphenoid surgery are described in detail and an

overview is provided of the excellent outcomes the authors experienced with the approach in a rather large cohort of patients.

Porčnik et al. (9) provided an excellent clinical study investigating the use of continuous dynamic mapping of the corticospinal tract in removing tumors from motor eloquent regions of the brain. The technique employed both continuous dynamic mapping with motor-evoked potentials to monitor patient motor function, which allowed for higher rates of gross total resection. This important study will further help in improving the safety of surgery in the proximity of the corticospinal tract. An extremely interesting cross-sectional study on the effect of antiepileptic treatments (carbamazepine and lamotrigine) on the bone health of patients with tumor-initiated seizures was provided by Mehičević et al. (10). Patients taking antiepileptics were found to have lower bone mineral density versus controls, which means that patients from this cohort should have their bone health carefully evaluated and monitored considering the risk of osteoporosis or osteopenia. This article will be of great interest to neurosurgeons, neurologists, and orthopedic surgeons who treat patients suffering from central nervous system (CNS) tumors and who are frequently at risk of developing osteoporosis and various bone fractures. Another retrospective clinical series by Ravnik et al. (11) analyzed the safety, efficacy, and surgical outcomes of an extensive posterolateral 1-step approach for very frequent neurosurgical problem—giant spinal epidural tumors. The authors’ procedure included costotransversectomy, laminectomy, corpectomy, tumor resection, spinal column stabilization, and reconstruction to provide a safe and effective approach that balances the needs for invasive surgical access with sufficient exposure of the surgical site for both tumor resection and spinal column reconstruction. Matić et al. (12) (Rasulić group) provided a thorough personal experience and review article of peripheral nerve tumors, including recent advances in diagnostics, differential diagnostics, pathology, treatment option, and prognosis. While the goal of removing nerve tumors and preserving nerve function at the same time is

complicated and difficult, excellent results can be achieved with carefully planned surgery and superb technique. The article benefits from numerous color illustrations and provides an interesting read for beginners to neurosurgery to advanced peripheral nerve surgeons.

We are hopeful readers will enjoy this Supplement Issue of AMA and find it interesting and informative.

Acknowledgement: We appreciate the very hard work and efforts of both Academician Prof. Dr. Husref Tahirovic, Editor, and Ms. Nerma Tanovic, the Secretary of the Journal *Acta Medica Academica*, for their work on the supplement. We are also indebted to Academician Professor Dr. Lidija Lincender-Cvijetic, the Vice-President of the Academy of Arts and Sciences of Bosnia and Herzegovina, for her enthusiastic contributions and help conducting the “Neuro-Oncological Aspects in Modern Neurosurgery of 21st Century” Symposium, which was held on January 31, 2020 in Sarajevo. It is from the Symposium that the idea and content of this supplement originated. Finally, Mr. Andrew J. Gienapp of the Department of Neurosurgery, University of Tennessee and the Neuroscience Institute of Le Bonheur Children's Hospital, Memphis, TN served as a Guest Language Editor and provided an invaluable contribution to the supplement.

Conflict of Interest: The authors declare that they have no conflict of interest.

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