Oklahoma

Department of Neurosurgery, University of Oklahoma Health Sciences Center

Andriy Yabluchanskiy

Zoltan Ungvari

Mitigation of cardiac autonomic dysregulation by neuromodulation technologies is emerging as a new therapeutic modality of heart failure (HF). This progress has necessitated the identification of a biomarker for the quantification of sympathovagal balance, the potential target of 'neuromodulation' strategies. The currently available autonomic nervous system assessment parameters do not truly reflect the sympathovagal balance of the ventricle. Protein kinase A (PKA) is an intracellular enzyme that plays a major role in the pathophysiology of functional and structural ventricular remodeling in HF. Interestingly, sympathetic and parasympathetic activations exert reciprocal influence on the activity of PKA [1].

Burks et al. reviewed clinical data on all patients undergoing glioma surgery performed by the senior author during a 4-year period at the University of Oklahoma Health Sciences Center. Forty patients were identified who underwent surgery for butterfly gliomas. Each patient was designated as having undergone surgery either with or without the use of awake subcortical mapping and preservation of the cingulum. Data recorded on these patients included the incidence of abulia/akinetic mutism. In the context of the study findings, the authors conducted a detailed anatomical study of the cingulum and its role within the DMN using postmortem fiber tract dissections of 10 cerebral hemispheres and in vivo diffusion tractography of 10 healthy subjects.

Forty patients with butterfly gliomas were treated, 25 (62%) with standard surgical methods and 15 (38%) with awake subcortical mapping and preservation of the cingulum. One patient (1/15, 7%) experienced postoperative abulia following surgery with the cingulum-sparing technique. Greater than 90% resection was achieved in 13/15 (87%) of these patients.

This study presents evidence that anterior butterfly gliomas can be safely removed using a novel, attention-task based, awake brain surgery technique that focuses on preserving the anatomical connectivity of the cingulum and relevant aspects of the cingulate gyrus [2].

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1)

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2)

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