The unseen impact – a deep dive into neurocognitive impairment among patients with intracranial meningiomas: a comprehensive systematic review of the literature

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PMID: 38922363   DOI: 10.1007/s10143-024-02530-w

Abstract

Meningiomas are the most common intracranial tumors, predominantly affecting adults, with a higher incidence in female and elderly populations. Despite their prevalence, research on neurocognitive impairment in meningioma patients remains limited compared to intra-axial tumors such as gliomas. We conducted a comprehensive systematic review of the current literature on neurocognitive outcomes in meningioma patients pre- and post-surgery. Our review revealed significant disparities in reported neurocognitive outcomes, with prospective studies suggesting tumor-related factors as the primary contributors to postoperative deficits, while retrospective studies imply surgical intervention plays a significant role. Regardless of study design or specifics, most studies lack baseline preoperative neurocognitive assessments and standardized protocols for evaluating neurocognitive function. To address these gaps, we advocate for standardized neurocognitive assessment protocols, consensus on neurocognitive domains to be targeted in this population by tailored test batteries, and more prospective studies to elucidate correlations between tumor characteristics, patient attributes, surgical interventions, neurocognitive status, and planning for implementing tailored neurocognitive rehabilitation strategies early in the postoperative course which is crucial for achieving optimal long-term neurocognitive outcomes and enhancing patients' quality of life.

Keywords: Meningioma; Neurocognitive function; Neurocognitive rehabilitation; Working memory.

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