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LETTER TO EDITOR

Artificial Intelligence in Cranial Surgeries

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Artificial Intelligence (AI) is a broad phrase that refers to any machine's activity that would otherwise need human intellect. Recent technological advancements have closed the gap between human and machines, allowing computers to replicate natural human intellect and produce "artificial intelligence". Neurosurgery has benefited the most from AI-driven technology advancements in the medical field. It's frightening to think that a computer may be taught or self-taught how to do spine or brain surgery. Embracing this technology will allow us to provide the best possible care for our patients, and its potential role in neurosurgery is intriguing.

The use of technology in neurosurgical treatments, particularly AI and robots, is on the rise [1,2]. In particular, research on techniques to intelligently automate the diagnosis and treatment of movement disorders and epilepsy has exploded in the field of stereotactic and functional neurosurgery. Robotassisted surgery, automated preoperative planning, diagnostic brain imaging categorization, surgical candidate selection, prediction of postoperative patient outcomes, and identification of epileptic zones within the brain are some of the critical neurosurgical uses of AI [3]. AI in brain surgery has mainly stayed outside of the clinical arena, with most descriptions coming from research situations. AI basically mimics the cognitive modules of the biological brain, such as information collection, processing, learning, and reasoning [4]. This AI computational method helps surgeons diagnose tissue samples quickly and accurately in the operating theatre. A tiny sample can be submitted for optical imaging if the surgeon believes they are nearing the tumor's edge. In roughly 90 seconds, a computer can evaluate it and detect tumorous tissue with a 94.6% accuracy [5]. This AI model might help surgeons detect what would otherwise be unseen, giving them more confidence in determining the edge of an ill-defined tumour border.

In the last half-century, the exponential increase of peer-reviewed literature and complicated datasets has begun to saturate the physician's capacity to keep up-to-date. Neurosurgery may use AI to help patients get the best possible results. Future research designs should compare the effectiveness of clinical professionals alone vs AI-assisted therapies to see if patient outcomes improve. Further study, funding, and interdisciplinary partnerships are required for the broad application of AI in neurosurgery in the future.

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