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Delivery of neurosurgical clinical trials at a Major Trauma centre – How do we do it?

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Background

Traumatic brain injury (TBI) is the leading cause of morbidity and mortality in individuals under 40 years and imposes a substantial economic burden. The UK government has committed to advancing research, innovation, and streamlined clinical trial delivery to provide patient centric evidence-based care and to improve outcomes. Neurosurgical trauma care in the UK is delivered through trauma units and major trauma centres (MTCs) and generally are affiliated with academic institutions with the ability to deliver randomised controlled trials (RCTs) – gold standard to produce class one evidence. In this narrative review, we examine how neurosurgical RCTs are delivered in UK MTCs and the required pathways.

Material and methods

The literature search focused on English-language peer-reviewed articles published between 2015–2025 using PubMed, Scopus, and ISI Web of Knowledge with terms: “neurosurgery,” “neurotrauma”, “traumatic brain injury”, “major trauma”, “major trauma centre”, “polytrauma”, “emergency”, “intensive care”, “critical care”, “clinical research”, “clinical trials”, “randomised control trials”, “CTIMPs”, “research study”, “research delivery”, “clinical research nurse”, “clinical research nursing”.

Results

There is no explicit evidence or guideline on neurosurgical RCT delivery at UK MTCs. Literature addresses specific studies or general research delivery but not specifically focusing on neurosurgery within the trauma pathway. Emergency department research and the role of research nurses have been featured. Overall, evidence suggests RCT delivery relies on institutional infrastructures, close collaborations among the participating centres and effective multidisciplinary collaboration.

Conclusion

There is scarce literature describing how neurosurgical clinical research is delivered within MTCs. Mapping UK practice and interdepartmental collaboration between pre-hospital, emergency, neurosurgery, intensive care and rehabilitation specialities is recommended. Systematic reviews should identify barriers, facilitators, and resource requirements to inform pragmatic, sustainable, and feasible RCT design and translation. Addressing workforce configuration, research nursing, MDT training deficits, and local finance and governance delays is essential to improve recruitment and data quality.