Royal Australasian College of Surgeons

Surgical inter-hospital transfers: life saver or resource drainer?

> As to diseases, make a habit of two things – to help, or at least to do no harm.
> The Hippocratic Corpus[1]

Australia is a large country but one of the most sparsely populated. This necessitates a mix of rural and metropolitan hospitals to serve its 25 million residents, of which almost a third live in remote and rural regions.[2] Inter-hospital transfers (IHTs) are the co-ordinated transportation of a patient between two or more acute care hospitals and affect up to 1 in 13 hospital admissions.[3] They are commonly required where appropriate healthcare cannot be delivered in remote locations. IHTs increase the available diagnostic and therapeutic services for patient care.[4] However, it is equally important to recognize that poorly co-ordinated transfers can lead to poor patient outcomes.[5–8] Being such a commonplace occurrence in the patient's journey, the quality and safety of IHTs for surgical patients in the Australian setting warrants detailed evaluation.

IHTs may be necessary for multiple reasons. These include lack of appropriate resources at the index hospital, higher acuity of care requirement, or need for complex multidisciplinary specialist care to ensure adequate patient management.[4,9] The process of IHT is complicated, requiring effective dialogue between the referring and receiving teams to ensure pertinent clinical information is communicated and patient-specific needs relayed.[8,10] Each transfer requires individualized shared decision making with patient safety and medical stability foremost in mind, taking into consideration the indication for transfer, capabilities of the health-care settings, distance and mode of transportation.[10] The inherent intricate nature of the transfer process highlights the importance of having a robust, repeatable and dependable system to ensure optimal patient outcomes. This need has become increasingly apparent in recent years due to the trend of increasing preoperative IHT of surgical patients.[11] This is likely due to increasing specialization of urban hospitals and the increased resource demands associated with sophisticated preoperative and intraoperative care.[4,12]

However, there is limited evidence on the widespread benefits of surgical IHTs. Many groups of transferred surgical patients have poorer outcomes compared to their non-transferred counterparts, including increased hospital admission length, healthcare costs and in-hospital mortality.[9,13] Transferred patients have twice the associated health-care costs and three times the in-hospital mortality compared with their non-transferred counterparts.[9,13] These poorer outcomes have been demonstrated in a range of surgical pathologies and specialties.[5–9] Proposed contributing factors relate to patients (e.g. older age, lower SES), disease (e.g. life-threatening illness) and transportation (e.g. mode of transport, distance travelled).[9] Postponement of surgery due to delay in transfer or increased preoperative transfer time due to remoteness of the referring hospital is a major contributor to poorer surgical outcomes.[5–7]

There are several proposals to address and overcome the barriers associated with effective IHTs. Utilizing an appropriate mode of transportation concordant with the distance needing to be traversed, the geography of the region, the equipment and expertise of available transfer crew, and the medical stability of the patient have been shown to improve survival.[10] Developing a systematic and rigorous health information exchange and handover system between facilities improve patient outcomes by ensuring accurate and up-to-date patient clinical data and diagnosis is available.[10] The presence of specialized and experienced staff during transfer has also been shown to reduce transport morbidity.[4] Patients with myocardial infarction or stroke experience improved outcomes following IHTs, likely due to standardized transfer protocols and expedited interventions.[9] These success stories demonstrate the potential positive consequences of effective IHTs.

Particularly in the dynamic climate of COVID-19, an evidence-based approach must be utilized to improve IHTs in Australia.[14] There remains a need for further investigation into factors affecting the negative trajectory of surgical patients that undergo IHTs. It is imperative that factors resulting in futile transfers are identified to ensure best patient care and that scarce regional resources are not squandered. A national surgical audit database, such as the Australian and New Zealand Audit of Surgical Mortality, captures data from all surgical mortality in Australia and may play a key role in discovering relevant avoidable factors contributing to patient mortality during IHT.[15] Recent reviews of this data identified that IHTs were involved in up to 30% of cases of surgical mortality[11].

IHTs to provide necessary patient care is inevitable due to the unique challenges of the Australian geography, population density and health-care system. Current evidence demonstrates that IHTs are an independent risk factor for mortality in surgical presentations. Avoidable transport-associated factors have been identified, however the current rate of mortality in IHT suggest further research into attributable factors should be performed to minimize patient harm and reduce surgical mortality. IHTs have the potential to be a lifeline for the unwell surgical patient, and careful planning is imperative to ensure it is not an unintended resource drainer.

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