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PAEDIATRIC CODE BLACK ALERTS: DO THEY DECREASE TIME FROM ADMISSION TO NEUROSURGERY?

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Introduction:

The current neurosurgical consensus [1] is that traumatic brain injuries requiring urgent surgery should be performed as soon as possible. Prehospital teams arriving at The Royal London Hospital (RLH) already provide an advanced alert (Code Black) to mobilise neuro-trauma teams once specific criteria are met. In paediatric cases this service has not yet been launched but is invariably used. This retrospective descriptive study demonstrates statistically significantly reduced times from ED admission to knife-to-skin time for time-critical neurosurgery (TCN) when patients are triaged as a paediatric Code Black alert compared to the standard Trauma Call alert.

Methods:

Records for every patient aged <16 presenting at the RLH between January 2014 to January 2020 with an abbreviated head injury score of 3-5 were taken from the Trauma Audit & Research Network (TARN) database. We recorded which advanced alert was issued and whether the injury was managed medically in PICU or by TCN.

Results:

Preliminary data was non-parametric and showed that the median time from admission to TCN for Trauma Call alerts was 146 minutes and 65 minutes for Code Black alerts respectively which represents a statistically significant reduction of 55.5% ($p=0.017$).

Conclusions:

The RLH is a major trauma centre where time-critical paediatric neurosurgery is performed. Code Black alerts are sent to the radiologist and neurosurgeon on-call and the paediatric theatre coordinator who must all attend the arrival of the patient. Alerting the theatre coordinator before the patient arrives in the department provides vital time to find theatre space and mobilise the team that may be needed to assist in the operating room. As the neurosurgeon is an additional decision maker with regards to medical versus surgical management, their presence is likely to reduce delays in definitive care. In addition, it is probable that the Code Black alert facilitates early initiation of neuro-intensive care. This study demonstrates that simple triage tools and targeted communication systems, developed with the aim of identifying and mobilising key decision makers, can result in significantly reduced delays between admission and operative intervention. Whether or not this translates directly into an improved outcome is not yet clear. However demonstrating how simple strategies aimed at mobilising key decision-makers in the hospital can significantly reduce waiting times has implications for all clinical teams. Given the decreased time to surgery, we recommend that paediatric Code Black alerts be used for all our patients meeting the criteria.

Reference:

1. Bullock et al. Surgical Management of Traumatic Brain Injury Author Group. Neurosurgery 58: 3 (2006)