South Wales

Time-critical neurosurgical conditions require urgent operative treatment to prevent death or neurological deficits. In New South Wales/Australian Capital Territory patients' distance from neurosurgical care is often great, presenting a challenge in achieving timely care for patients with acute neurosurgical conditions.

A protocol was developed to facilitate consultant neurosurgery locally. Children with acute, time-critical neurosurgical emergencies underwent operations in hospitals that do not normally offer neurosurgery. The authors describe the developed protocol, the outcome of its use, and the lessons learned in the 9 initial cases where the protocol has been used. Three cases are discussed in detail.

Nine children were treated by a neurosurgeon at 5 rural hospitals, and 2 children were treated at a smaller metropolitan hospital. Road ambulance, fixed wing aircraft, and medical helicopters were used to transport the Newborn and Paediatric Emergency Transport Service (NETS) team, neurosurgeon, and patients. In each case, the time to definitive neurosurgical intervention was significantly reduced. The median interval from triage at the initial hospital to surgical start time was 3:55 hours, (interquartile range [IQR] 03:29-05:20 hours). The median distance traveled to reach a patient was 232 km (range 23-637 km). The median interval from the initial NETS call requesting patient retrieval to surgical start time was 3:15 hours (IQR 00:47-03:37 hours). The estimated median “time saved” was approximately 3:00 hours (IQR 1:44-3:15 hours) compared with the travel time to retrieve the child to the tertiary center: 8:31 hours (IQR 6:56-10:08 hours).

Remote urgent neurosurgical interventions can be performed safely and effectively. This practice is relevant to countries where distance limits urgent access for patients to tertiary pediatric care. This practice is lifesaving for some children with head injuries and other acute neurosurgical conditions [1].

1)
Owler BK, Carmo KA, Bladwell W, Fa'asalele TA, Roxburgh J, Kendrick T, Berry A. Mobile pediatric neurosurgery: rapid response neurosurgery for remote or urgent pediatric patients. J Neurosurg Pediatr. 2015 Sep;16(3):340-5. doi: 10.3171/2015.2.PEDS14310. Epub 2015 Jun 19. PubMed PMID: 26090548.