Developing Neurotrauma Guidelines

Peter Reilly[1]

[1]Department of Neurosurgery, School of Health and Medical Sciences, University of Adelaide, Adelaide, South Australia

Address for correspondence Peter Reilly, Department of Neurosurgery, School of Health and Medical Sciences, University of Adelaide, Adelaide, South Australia (e-mail: peter.reilly@adelaide.edu.au).

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Clinical practice guidelines are based on a systematic review of literature, with the quality of evidence graded to support a recommendation. They were first published for neurotrauma by the US Brain Trauma Foundation in 1995 for the acute medical management of severe traumatic brain injury (TBI); since then, they have been extended to cover other aspects of TBI management, including prehospital phase, and taken up internationally.[1] Various studies have assessed the degree of adherence to the guideline recommendations and shown evidence of improvement in outcomes related to the application of guidelines. Since then many national, evidence-based guidelines have been developed to cover brain and spinal injury.

In 1992, the Neurosurgical Society of Australasia (NSA) with the Royal Australasian College of Surgeons (RACS) developed a set of guidelines for the management of acute neurotrauma in rural and remote locations.[2] These guidelines aimed at assisting rural surgeons, general practitioners, and rural hospitals faced with a neurotrauma emergency. They were designed for the specific Australian circumstances where a remote and sparely spread population may be many hours from a neurosurgical center and the immediate care and decisions fall on the local medical services. They were based on a consensus of expert opinion. Later editions took account of evidence-based guidelines published since the first edition. They are set out as advice for actions to be taken at each step and circumstance from the accident site to discharge from the local hospital or transfer to a neurosurgical service. It is important to note that the guidelines are part of a comprehensive neurotrauma system, which is based on prior training in basic neurotrauma care and includes the 24-hour availability of communication with a neurosurgical service. The guidelines emphasize the importance of communications with a neurosurgeon to assist in any important decision and particularly if retrieval is considered. On rare occasions, when a deteriorating patient is some hours from the neurosurgical center, the local practitioner may be obliged to operate by burr hole or craniotomy. Decisions can be made with the neurosurgeon on call and a retrieval team dispatched from the trauma center. Local hospitals should possess basic neurosurgical instruments. Skype (Microsoft) or other forms of video link enable the neurosurgeon to be a virtual assistant.

The RACS provides training in rural surgery including basic trauma neurosurgery. Most regional hospitals have a CT scan and teleradiology linked to the trauma center.

The guidelines comprise management plans from the accident site to the primary hospital, where reasons for admission, investigations, consultation with a neurosurgical service, and transfer via a retrieval team are set out. They include the investigations and steps which may lead to emergency neurosurgical procedures. Additional sections address spinal injury, pediatric TBI, moderate TBI, infection, and epilepsy.

In summary, the guidelines are part of an integrated trauma system which includes training for rural surgeons and general practitioners, concurrent communication, and feedback. The benefits of the system have been reviewed and reported.[3]

The Australian guidelines were developed to address a specific need, that is, to institute expert assistance in places remote from specialized services, use the resources available on site, and avoid delay in applying definitive treatment due to distance.

These guidelines may be appropriate in low-and middle-income countries (LMIC) where time taken to receive definitive treatment is long because of distance, traffic, or lack of transport, and where local expertise is limited. They may assist in training local medical and paramedical personnel as part of a local trauma system. The trauma system, whose central point is the neurosurgical hospital, should be designed around the local resources and include clear pathways of communication to the neurosurgical hospital.

A modified version of the guidelines is available on the Asian Australasian Society of Neurological Surgeons (AASNS) website and may be used as a basis for local application.

Conflicts of Interest
None declared.

References

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