Neurovascular Units: A New Cost Effective Model?

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Stroke units have shown to be cost effective for the care of a range of stroke patients (Cochrane Collaboration 2015) and intensive care of acute conditions, such as subarachnoid hemorrhage, also seem to justify their costs. Now Appel et al describe a model hybrid neurovascular unit that treats both types of patients.

Stroke units decrease short-term and long-term mortality rates in the entire stroke population as well as in subgroups. Stroke unit care also reduces the need for long-term hospitalization. This difference in favour of the stroke unit was independent of the patients' age, the extent of neurological deficit on admission and previous history. In subgroups where the general prognosis is fair or good (minor neurological deficits and less than 75 years of age), stroke unit care accelerated the process of rehabilitation, in groups with a poor general prognosis (major deficits and more than 75 years of age), the ultimate proportion of patients able to return home was enhanced by stroke unit care. It is concluded by many randomized trials that care in a stroke unit benefits greatly the majority of stroke patients and that such a unit should be designed to admit all acute stroke patients without pre-selection.

There is also a need to care for patients with other acute neurovascular conditions. Data suggest that high-intensity staffing patterns in the intensive care unit (ICU) are associated with cost savings and improved outcomes. Many studies in literature investigated the cost-effectiveness and clinical outcomes of high intensity ICU, physician staffing as recommended by The Leapfrog Group (a consortium of companies that purchase health care for their employees) and identified ways to overcome barriers to nationwide implementation of these standards. Hospitals that have implemented the Leapfrog initiative have demonstrated reductions in mortality, length of stay and cost savings.

Although the exact mechanisms that explain this observation are still largely unknown, recent literature suggests that high-intensity and the presence of a multidisciplinary team both play key roles. Other factors that may explain the association between high-intensity intensive care unit physician staffing and improved outcomes include rapid access to critical care by an experienced critical care provider and consistent implementation of protocols to deliver evidence-based critical care.

The Toronto Western Hospital (TWH) is an acute care academic hospital and regional stroke center. Stroke patients were treated by a mobile stroke team and the patients were admitted either to a general medical ward or the neurology ward. Patients with other acute neurovascular conditions, such as subarachnoid hemorrhage, were admitted to neurosurgery. A 20 bed neurovascular unit (NVU) was created to admit both types of patients.

Using retrospective patient level data from two years prior and one year post NVU, Appel et al suggest an overall savings of CDN $450,000.
NVU, probably favorably. However, further studies on clinical outcomes are essential, since outcomes are the ultimate measure of success in health care.

DISCLOSURES
The authors do not have anything to disclose.

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REFERENCES