

Optimizing Clinical Decision Making in Acute Traumatic Spinal Cord Injury

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Abstract

Spinal cord injury (SCI) is a devastating event causing lifelong disability that results in a significant decrease in quality of life and immense cost to the health care system, individuals and their families. Providing specialized and timely care can improve recovery and reduce costs, but to make this a reality requires understanding of the current care delivery processes and the care journey. The objective of this focus issue is to examine the current state of health care delivery and discover opportunities to improve access and timing to specialized care for individuals with tSCI. This issue provides an overview of care throughout the SCI continuum and its impact on individuals with tSCI using pan-Canadian data. The issue also presents findings from the RHI Access to Care and Timing (ACT) Project, a multi-center research study involving a multi-disciplinary team of Canadian researchers and clinicians. The initial articles describe the current state of the tSCI care journey including a comparison of environmental barriers, health status, and quality-of-life outcomes between patients living in rural and urban settings. The issue concludes with an article describing the national knowledge translation efforts of using the evidence from the articles published here to inform practice and policy change. Overall, this focus issue will be an excellent reference to guide and optimize evidence informed decision-making in the care of those with tSCI. The evidence can be transferred to care in non-traumatic SCI and other conditions that benefit from timely access to specialized care such as stroke and traumatic brain injury.

SPINAL CORD INJURY (SCI) is a devastating event causing lifelong disability that results in a significant decrease in quality of life and incurs immense cost to the healthcare system and individuals and their families. Providing specialized and timely care can improve recovery and reduce costs, but to make this a reality requires understanding of the current care delivery processes and the care journey. The Canadian SCI Network supported by the Rick Hansen Institute (RHI) felt that this information is needed to optimize clinical decision-making in SCI. However, little has been reported on the quality of the current process and patient journey along the traumatic SCI (tSCI) care continuum, and on how the current model of care compares with published recommendations.

The objective of this focus issue is to examine the current state of healthcare delivery and discover opportunities to improve access and timing to specialized care for individuals with tSCI. This focus issue provides an overview of care throughout the SCI continuum and its impact on individuals with tSCI using pan-Canadian data. The issue also presents findings from the RHI Access to Care and Timing

(ACT) Project, which is a multi-center research study involving a multi-disciplinary team consisting of researchers and clinicians across Canada. The first phase of the project was to map the processes of healthcare delivery and patient flow from the moment of injury through to discharge into the community for individuals with tSCI. In the second phase, the maps were combined with clinical and administrative data collected from the Rick Hansen SCI Registry (RHSCIR) to develop a computer simulation model of the tSCI care continuum, known as the ACT Model V1.0^{1,2} to simulate patient flow through the healthcare system and project long-term outcomes for tSCI. With 18 participating acute SCI facilities and 13 participating rehabilitation SCI facilities spanning across 16 cities in 9 of 10 provinces, the ACT Project examines the specialized care provided to Canadians with a system perspective.

The first few articles in this issue describe the current state of the tSCI care journey starting with the article by Noonan and colleagues,³ which describes the structure and service attributes of an SCI facility in Canada based on recommendations by Parent and

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co-workers.⁴ The geographic distribution of tSCI and the first transition in the care journey from point of injury to SCI specialized acute care is described in Cheng and associates⁵ using the concept of early admission to an SCI facility as recommended. The next article by Cheng and associates⁶ focuses on the transition from acute care to rehabilitation and community reintegration, and explores whether specialized rehabilitation improves the likelihood of patients returning home. Knowing the wide geographic variation in tSCI, Glennie and colleagues⁷ compared the environmental barriers, health status, and quality-of-life outcomes between patients living in rural and urban settings.

To facilitate clinical decision making in tSCI, Marion and co-workers⁸ analyzed the association between modifiable comorbidities and adverse events (AE) to enhance AE surveillance for those at risk. White and associates⁹ documented the excess costs of the two most common secondary complications of tSCI and highlighted the importance of robust evidence of the economic burden of secondary complications in enabling comparative economic analyses for decision-making in SCI. To support strategic planning in the rehabilitation care phase, Truchon and colleagues¹⁰ simulated a practice change involving increasing rehabilitation intensity to test its impact on functional recovery and length-of-stay efficiency. How the efficiency and performance of the healthcare system can be impacted by the complexity and inconsistency of reporting length of stay is discussed in the article by Burns and co-workers.¹¹ To assist the directing of healthcare planning in SCI and to inform policy decision making about the allocation of future resources, the simulation model was applied to forecast future tSCI care needs in the article by Ahn and colleagues.¹²

During the development of the previous articles, gaps related to knowledge and data across the SCI care continuum were identified, as summarized by Dvorak and associates.¹³ Efforts to bridge these gaps will advance SCI health services research and strengthen evaluations of care improvement initiatives. The issue concludes with Fehlings and colleagues¹⁴ describing our current national knowledge translation effort of using evidence published in this issue to inform practice and policy change to enhance quality of tSCI care.

As part of the knowledge translation effort, a multi-disciplinary group of stakeholders, incorporating representation from across the SCI care continuum, has been engaged for the implementation of a national action plan to monitor and improve patient flow for tSCI care and health system performance. This focus issue provides a national overview of key health system topics following tSCI and will be an excellent reference to guide and optimize evidence-informed decision making. The learnings from this focus issue are transferable to improving the care delivery in non-traumatic SCI, as well as health conditions that benefit from timely access to specialized care such as stroke and traumatic brain injury.

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