

Identifying Knowledge Gaps with Administrative Health Data: A Cohort Study of Traumatic and Non-Traumatic Spinal Cord Injury in Alberta

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Introduction

The Spinal Cord Injury (SCI) population consists of two main sub-groups: traumatic (TSCI) and non-traumatic (NTSCI). TSCI has been studied; however less attention has been given to NTSCI. It is important to understand both SCI sub-groups for identification of knowledge gaps and subsequent health service planning.

Objectives and Approach

The goal is to study the SCI population (both TSCI and NTSCI) in Alberta, Canada, leveraging recent administrative health data. It is difficult to identify NTSCI patients for their heterogeneous conditions, and relatively low prevalence. Consequently, we followed a validated algorithm using particular ICD-10-CA codes, to identify (and index) adult SCI patients from Ambulatory and Inpatient records between April 1, 2006 and March 31, 2016.

Indexed patients were linked to various databases (inpatient, ambulatory, physician claims, provincial insurance registry), and analyzed in multiple perspectives such as demographics patterns, deaths, resource and cost utilization, geographic distribution, and care equity between groups.

Results

Through 10 years of data we have identified 5217 SCI patients (3309 TSCI; 1908 NTSCI). 68.7% TSCI and 58.6% NTSCI are male. NTSCI patients are approximately 10 years older (46.3 TSCI; 54.5 NTSCI), and have a 3-point higher Charlson score. 1-year mortality in NTSCI is approximately 2.4 times the TSCI group.

Hospitalizations, ER visits, critical care time have also been examined. Patients with NTSCI had a higher median index LOS (14 days IQR (4-51)) compared to the traumatic group who had much higher variability (11 days IQR (11-65.5)). Noted 13.7% NTSCI patients and 19.5% TSCI do not have hospitalizations after index (a diverse characteristic of SCI).

Resource Intensity Weights, physician billing, rural-urban area utilization have also been compared between the sub-groups.

Conclusion/Implications

With the use of administrative databases and a validated algorithm, we described a diverse patient cohort with two main sub-groups (TSCI/NTSCI). Both groups were analyzed upon multiple topics and showed variations. Our results have provided updated knowledge of a comprehensive SCI population in Alberta, Canada, and may lead to improvements on caregiving model.

