



Training/Practice
Health Policy and Promotion

Geographical Differences in Comorbidity Burden and Outcomes in Adults With Syncope Hospitalizations in Canada

Ahmed Abulhamayel, MBBS,^a Anamaria Savu, PhD,^b Robert S. Sheldon, MD, PhD,^c
Padma Kaul, PhD,^{a,b} and Roopinder K. Sandhu, MD, MPH^a

^a University of Alberta, Division of Cardiology, Edmonton, Alberta, Canada

^b Canadian VIGOUR Centre, University of Alberta, Edmonton, Alberta, Canada

^c University of Calgary, Calgary, Alberta, Canada

ABSTRACT

A recent study found that rates of hospitalization for syncope vary across provinces; however, it is unknown whether differences in comorbidity burden and outcomes also exist. The Canadian Institute for Health Information Discharge Abstract Database was used to identify primary syncope hospitalizations (ICD-10 code R55) from 2004 to 2013 for all provinces (except Quebec). Charlson comorbidity score was calculated from comorbidities at the time of hospitalization. Outcomes were defined as in-hospital mortality, 30-day readmission for any cause, and syncope. Logistic regression models were constructed for odds ratios (ORs) and 95% confidence intervals (CIs) to estimate interprovincial differences in outcomes. The interprovincial range (IPR) for mean age was 61.1 ± 17.5 to 73.7 ± 16.3 years, and at least half were male patients. There were significant differences in comorbidity burden across provinces ($P < 0.01$); however, the majority

RÉSUMÉ

Une étude récente a montré que les taux d'hospitalisation pour cause de syncope varient d'une province à l'autre; toutefois, on ignore s'il existe également des variations sur le plan du fardeau de la comorbidité et des résultats. La Base de données sur les congés des patients de l'Institut canadien de l'information sur la santé a été utilisée pour recenser les hospitalisations pour cause de syncope primaire (code R55 dans la CIM-10) de 2004 à 2013 dans toutes les provinces (sauf le Québec). L'indice de comorbidité de Charlson a été calculé à partir des comorbidités présentes au moment de l'hospitalisation. Les résultats définis étaient la mortalité hospitalière, la réadmission dans les 30 jours pour toute cause, et la syncope. Des modèles de régression logistique ont été construits pour les rapports de cotes (RC) et les intervalles de confiance (IC) à 95 % afin d'estimer les différences interprovinciales en matière de résultats. L'intervalle

A recent study found crude hospitalization rates for primary discharge diagnoses of syncope significantly differ across the provinces and territories.¹ It is unknown whether there are also geographical differences in comorbidities and outcomes. A better understanding of these data may help in the development of standardized practices, benchmark care, and reduced syncope-related health care utilization and costs. We sought to determine if the care given for patients hospitalized with a primary diagnosis of syncope in any province, as compared to Ontario, is associated with differences in in-hospital mortality or 30-day readmission.

Methods

We used the Canadian Institute of Health Information (CIHI) Discharge Abstract Database of acute hospitalizations to identify patients ≥ 20 years old with primary diagnoses of syncope (International Classification of Diseases, 10th Revision [ICD-10] code R55) from all provinces except Quebec between April 1, 2004, and March 31, 2014. A total of 101,635 episodes for primary diagnoses of syncope occurred over the study period. Of these, 2903 were excluded for patients < 20 years of age and 2 for incomplete data, leaving 98,730 episodes of 91,476 patients for this analysis.

Comorbidities were considered to be present if recorded in any of the secondary diagnosis fields of the syncope hospitalization, and a Charlson comorbidity score was calculated for each patient as 0, 1-2, 3-4, or ≥ 5 . The Canadian Classification of Health Interventions codes was used to track pacemaker (1.HZ.53 ending in NM, NK, NL, NN, FR) and implantable cardioverter defibrillator (ICD, 1.HZ.53 ending

Received for publication January 17, 2018. Accepted April 11, 2018.

Corresponding author: Dr Roopinder K. Sandhu, 8440-112 Street, 2C2 WMC, Edmonton, Alberta T6G 2B7, Canada. Tel.: +1-780-407-6827; fax +1-780-407-6452.

E-mail: rsandhu2@ualberta.ca

See page 940 for disclosure information.

of patients had a Charlson comorbidity score = 0 (IPR, 53.9%- 71.9%). In multivariable analysis, compared with Ontario, in-hospital mortality was higher for British Columbia (OR, 1.59; 95% CI, 1.22-2.06), Nova Scotia (OR, 1.67; 95% CI, 1.05-2.65), and Newfoundland (OR, 2.27; 95% CI, 1.29-4.00); 30-day readmission for any cause was higher for British Columbia (OR, 1.15; 95% CI, 1.06-1.26), Alberta (OR, 1.19; 95% CI, 1.07-1.31), Manitoba (OR, 1.36; 95% CI, 1.18-1.56), and Prince Edward Island (OR, 1.38; 95% CI, 1.0-1.89), and all outcomes were higher in Saskatchewan. There is significant interprovincial heterogeneity in comorbidity burden and outcomes for hospitalizations for syncope. Future research evaluating whether standardized practices for management of syncope reduce variability and improve healthcare utilization and costs is needed.

in FS) implants at index hospitalization, 30 days, and 1 year after discharge.

The primary outcome was defined as in-hospital mortality. The secondary outcomes were hospital readmission within 30 days after discharge for any cause and for syncope.

Statistical analysis

Baseline characteristics are presented as mean with standard deviation or median and interquartile range for continuous variables and as count and percentage for categorical variables. The baseline characteristics were compared across the provinces and territories using 1-way analysis of variance (ANOVA) and Kruskal-Wallis test for continuous variables and chi-square tests for categorical variables. The difference between age-sex standardized hospitalization rates for syncope was calculated with a Poisson regression model. The unit for analysis was the syncope episode, and therefore patients with more than 1 episode of syncope during the study period were counted each time they were admitted for syncope. Interprovincial range (IPR) is reported for the lowest to highest provincial value. Age-sex standardized hospital discharge rates were calculated for each province over the study period. Logistic regression models were constructed to estimate interprovincial differences in outcomes after adjusting for age, male sex, Charlson comorbidity score, and length of stay. Multivariable models included only 1 syncope episode per patient: namely, the patient index (earliest) episode during our study period to eliminate data correlations between episodes of the same patient. Multivariable models incorporated a fixed intercept for each province and a random intercept for each hospital: specifically, patients from the same hospital received the same adjustment, which summed up the adjustments for the province and hospital. The adjustments for the provinces were parameter fixed. The adjustment for the hospital varied randomly from hospital to hospital. In addition, Prince Edward Island and the Territories were not included in multivariable analyses of in-hospital death and 30-day

interprovincial (IIP) pour l'âge moyen était de 61,1 ± 17,5 à 73,7 ± 16,3 ans, et au moins la moitié des patients étaient des hommes. Des différences importantes en matière de fardeau de la comorbidité ont été observées entre les provinces ($p < 0,01$); toutefois, chez la majorité des patients, l'indice de comorbidité de Charlson était égal à 0 (IIP 53,9 % - 71,9 %). Dans l'analyse multivariée, comparativement à l'Ontario, la mortalité hospitalière était plus élevée en Colombie-Britannique (RC 1,59; IC à 95 % : de 1,22 à 2,06), en Nouvelle-Écosse (RC 1,67; IC à 95 % : de 1,05 à 2,65) et à Terre-Neuve (RC 2,27, IC à 95 % : de 1,29 à 4,00); la réadmission dans les 30 jours pour toute cause était plus élevée en Colombie-Britannique (RC 1,15; IC à 95 % : de 1,06 à 1,26), en Alberta (RC 1,19; IC à 95 % : de 1,07 à 1,31), au Manitoba (RC 1,36; IC à 95 % : de 1,18 à 1,56) et à l'Île-du-Prince-Édouard (RC 1,38; IC à 95 % : de 1,0 à 1,89), et les valeurs pour tous les résultats étaient plus élevées en Saskatchewan. Il existe une hétérogénéité interprovinciale importante sur le plan du fardeau de la comorbidité et des résultats de l'hospitalisation pour cause de syncope. Il est nécessaire de poursuivre les recherches afin d'évaluer si la normalisation des pratiques de prise en charge de la syncope peut se traduire par une réduction de la variabilité et par une amélioration de l'utilisation et des coûts des soins de santé.

readmission for syncope because of low event count. All analyses were conducted with SAS software (version 9.4; SAS Institute, Inc., Cary, North Carolina).

Results

The age-sex standardized hospitalization rate for syncope varied significantly across the provinces and territories (Supplemental Figure S1, $P < 0.0001$). The highest rate of syncope hospitalizations occurred in New Brunswick (0.90 per 1000 person-years), and the lowest rate occurred in Manitoba (0.31 per 1000 person-years).

Baseline characteristics for each province and the territories are shown in Table 1. The mean age IPR was 61.1 (± 17.5) years (Territories) to 73.7 (± 15.6) years (Manitoba). At least half of patients were male, except in Saskatchewan (49.1%). There were significant geographical differences in comorbidity burden for patients hospitalized with syncope; however, the majority of patients were without any comorbidity. The IPR in Charlson comorbidity score = 0 was 53.9% in Alberta and 71.9% in New Brunswick.

There were significant geographical differences in pacemaker implants at index syncope hospitalization and 1-year after discharge ($P < 0.01$, respectively; Supplemental Table S1) but not within 30 days of discharge ($P = 0.36$). Less than 1% of patients with syncope had implantable cardioverter-defibrillator (ICD) implants at each of the 3 time points.

In-hospital Mortality and Hospital Readmissions

The rates of in-hospital mortality and 30-day readmission for any cause and syncope were significantly different across the provinces and territories ($P < 0.01$, $P < 0.01$, $P = 0.03$, respectively, Supplemental Figure S2). Overall, in-hospital mortality was 0.7% and was lowest for New Brunswick (0.43%) and highest in Nova Scotia (1.1%). The 30-day IPR for readmission for syncope was 1% in New Brunswick and 1.6% in Saskatchewan. Thirty-day readmission rates for any

Download English Version:

<https://daneshyari.com/en/article/8604350>

Download Persian Version:

<https://daneshyari.com/article/8604350>

[Daneshyari.com](https://daneshyari.com)