

High safety-net hospital burden is associated with increased time to coiling in aneurysmal subarachnoid hemorrhage

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Introduction

Subarachnoid hemorrhage carries population-based mortality rates as high as 45%. Surgical treatment within 3 days of aneurysmal subarachnoid hemorrhage (aSAH) is associated with improved morbidity and mortality outcomes. Previous studies have identified patient-level factors influencing time to treatment, such as socioeconomic and insurance status, but not hospital-level characteristics. The impact of hospital-safety net burden on surgical management of aSAH remains unclear. This information can guide interventions aimed at reducing adverse outcomes associated with the surgical management of aSAH.

Methods

Patients were pulled from 2002 to 2011 Healthcare Cost and Utilization Project (HCUP) Nationwide Inpatient Sample (NIS) database national registry database. Hospitals were grouped according to safety-net burden, defined as the proportion of Medicaid and uninsured patient charges for all hospitalizations.

Patients had aneurysmal subarachnoid hemorrhage (SAH, ICD-9 430.xx) and underwent endovascular coiling procedure (39.79, 39.72, 39.52) were included. Generalized linear mixed model was used for multivariate analysis, control for confounding variables, survey stratum, and clustering, using Poisson regression approach². Delayed time to coil was defined as greater than 3 days.

Results

A total of 7,946 were noted with SAH and coiling procedure were noted during the study period. The degree of safety-net burden was independently associated with coil time in patients aSAH. High-burden hospitals had higher odds of increased coil time (RR= 1.34, CI 95% 1.08-1.66, p<0.01) compared to Low-burden and Medium-burden hospitals (RR=0.8, CI 95% 0.64-0.99, p=0.03).

Conclusions

High-burden hospitals have increased odds of delayed coil time in aSAH. This is consistent with established literature on inferior surgical outcomes at high-burden hospitals. Safety-net hospitals face a number of obstacles to quality improvement and it is important to recognize how this influences complex neurosurgical procedures.

Learning Objectives

By the conclusion of this session, participants should be able to

- 1) Understand hospital-safety net burden classification
- 2) Recognize safety-net status as a factor influencing the surgical treatment of aneurysmal subarachnoid hemorrhage

References

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