

Understanding the association between rurality and outcomes of spinal epidural abscess

Maria K. Pomponio BA, Jennifer Hong, MD

Introduction

Spinal epidural abscess (SEA) is an uncommon yet serious infection, associated with significant morbidity and mortality..

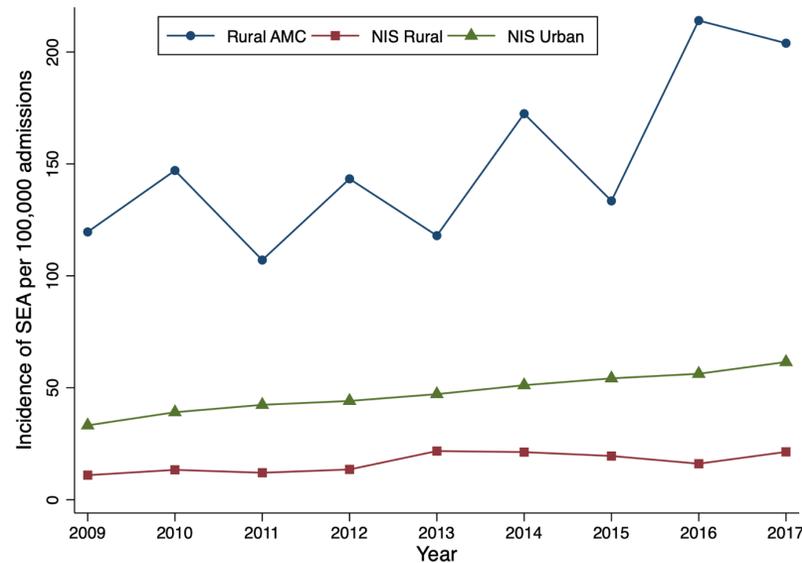
Background

- Known risk factors for SEA include IV drug use, alcohol abuse, low socioeconomic status, and diabetes mellitus¹⁻³
- Those who live in rural regions of the US encounter unique barriers to healthcare delivery, including lack of tertiary care facilities and inadequate transportation. We therefore sought to analyze the incidence, presentation, management and outcomes of SEA in rural and urban hospitals in order to gain insight on the challenges of rural based healthcare in treating SEA .

Methods

- Cross sectional retrospective analysis of DHMC patients compared to a cohort from the National Inpatient Sample (2009-2017)
- Inclusion Criteria
 - Age >18.
 - ICD9 Code 324.1 or ICD10 Code G06.1
- Univariate and multivariate logistic regression, inverse probability of treatment weighting (IPWRA) IPWRA method is used to assess the impact of inter-hospital transfer on mortality.
- Primary Outcome Measure
 - Incidence of SEA
 - In-hospital mortality

Trends in the incidence of SEA in discharges at a rural AMC (DHMC), NIS rural, and NIS urban hospitals



- The overall incidence of SEA in the NIS increased steadily from 30.65 per 100,000 admission in 2009 to 57.91 per 100,000 admissions in 2017.
- SEA incidence at DHMC was significantly higher than in the NIS, ranging from 119 admissions per 100,000 in 2009 to 204 admissions per 100,000 in 2017

Results

- Treatment at a rural hospital was not associated with in-hospital death during univariate regression analyses (OR:0.89, P=0.53)
- During multivariate analysis, treatment at an academic medical center, transfer status, endocarditis, and the presence of systemic infection remained significant predictors of mortality
- Patient transferred from an outside hospital increased the incidence of death by 63.6% after adjusting for covariates

	In-Hospital Mortality			P
	Coef.	95% CI		
<i>Transferred Yes v No</i>	0.02	0.01 to 0.02	<0.01	
<i>nl 1</i>	63.6%	39.7% to 87.5%	<0.01	

Conclusion

- Rurality was generally not associated with increased odds of death for patients treated for SEA
- However, both incidence and mortality of SEA patients was higher at DHMC, a rural academic medical center
- Future directions include geographical analysis analyzing
 - Bed availability
 - Transfer rates
 - Travel times between hospitals