

Introduction

Clostridium difficile infection (CDI) is an important cause of hospital acquired morbidity and mortality. This is the first nationwide analysis of the predictors for developing CDI and its impact on the outcomes after aneurysmal subarachnoid hemorrhage (SAH).

Methods

Database: National Inpatient Sample (2002-2010)

Inclusion: Patients with SAH undergoing aneurysm repair microsurgically or endovascularly.

Stratification: Developing CDI

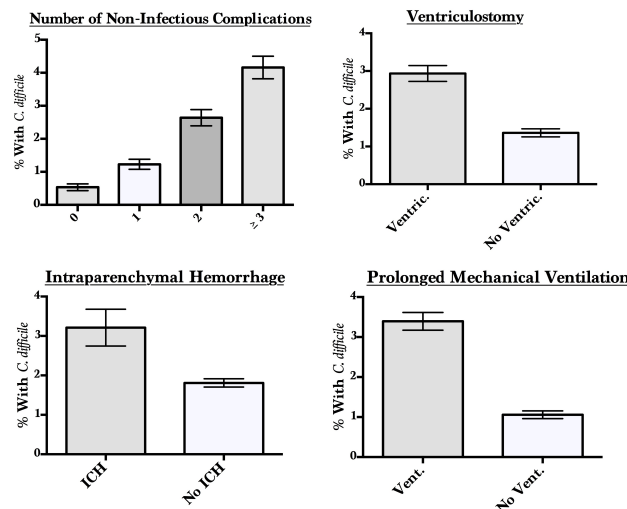
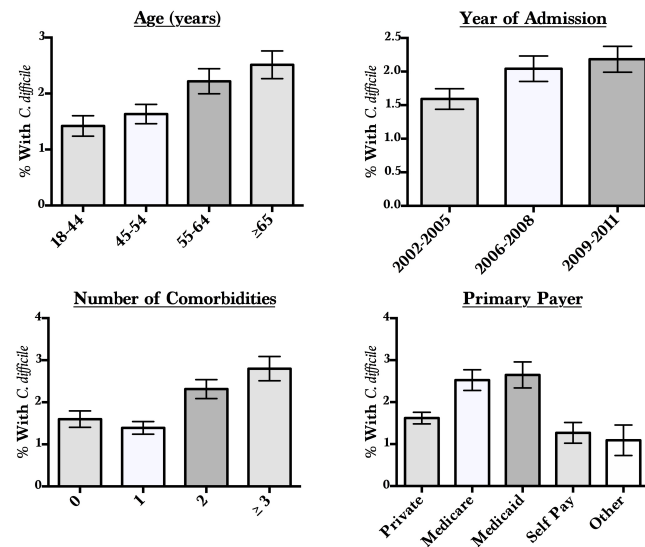
Covariates: Age, admission year, sex, comorbidities, primary expected payer, severity indices, infectious complications, non-infectious complications, hospital demographics

Outcomes: In-hospital mortality, length of stay, GI procedures, discharge disposition

Results

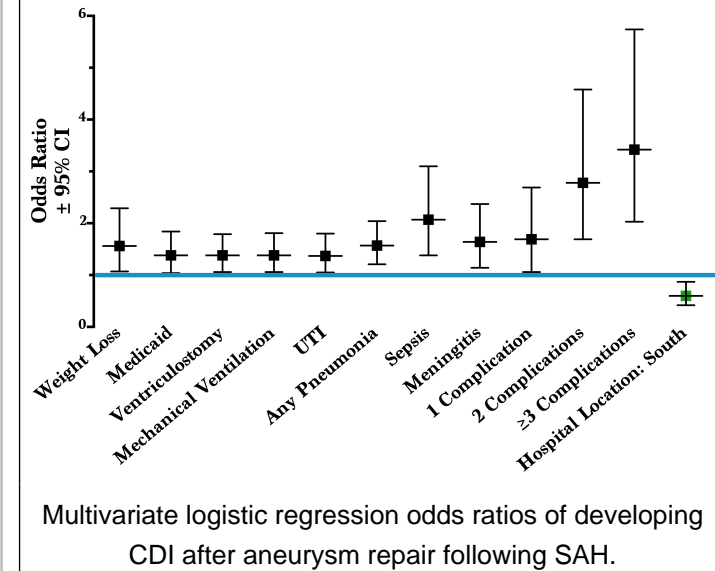
16,531 admissions were examined, of which 1.91% (n=316) developed CDI. Independent predictors of developing CDI were Medicaid payer status, ventriculostomy, prolonged mechanical ventilation, a greater number of non-infectious complications, as well as the development of a urinary tract infection, pneumonia, meningitis/ventriculitis, and sepsis (all p=0.03). Admission at a hospital in the South was associated with a decreased risk of CDI (p=0.008). CDI was not found to be associated with a significantly different odds of in-hospital mortality (OR 0.67; 95% CI 0.39, 1.16, p=0.17). However, CDI was associated with an increased adjusted odds of a hospital stay of at least 24 days (OR 3.27; 95% CI 2.41, 4.45, p<0.001) and of a non-routine hospital discharge (OR 1.49; 95% CI 1.05, 2.16, p=0.03).

Results: Figure 1



Demographics of patients undergoing aneurysm repair after SAH, stratified by CDI. All data are presented as percentages.

Results: Figure 2



Multivariate logistic regression odds ratios of developing CDI after aneurysm repair following SAH.

Discussion

Patients who have developed noninfectious complications may have greater exposure to healthcare providers and thus higher colonization pressure. In the present study, pre-morbid weight loss and usage of mechanical ventilation in hospitalized patients were associated with CDI suggesting the importance of overall nutritional status and immunologic integrity. Rates of interventional GI treatments in SAH patients with CDI were relatively low, suggesting that medical treatment alone may be sufficient.

Conclusion

In this nationwide analysis, infectious complications, non-infectious complications, and hospital geography were found to be predictors of CDI. Although CDI was not associated with mortality, patients with CDI had several inferior outcomes, including longer hospital stay and greater odds of non-routine hospital discharge.