

Objectives

This pilot proposal has two objectives that will support a larger, future proposal.

Objective 1. In one test year of data, identify a cohort of VA patients with asymptomatic carotid disease who had no prior carotid revascularization procedures. Extract and code stenosis rates from radiology data. Refine the sample by excluding those with maximum stenosis under 50%, and those over age 80. Determine number of years of data needed to achieve adequate expected statistical power in future proposal.

Objective 2. In one test year of data, demonstrate geographic practice pattern variation in likelihood of receiving CEA as a function of medical center effects and distance to the nearest medical center. Control for known factors affecting choice of CEA including comorbidity burden and degree of maximum stenosis.

Research Design

This is a retrospective analysis of administrative data.

Methodology

The proposed project is a retrospective observational study of secondary data from several sources. Primary data sources include patient-level administrative and claims data from two healthcare systems: VA and Medicare. This study will capitalize on variation in practice patterns to examine which treatments are most effective in patients with varying degrees of carotid stenosis and comorbidity burden. Using a unique national sample of veterans and instrumental variables analysis we will examine the causal relationship between treatment approach and risk-adjusted health outcomes.

Findings

This project will start on July 1, 2012.

Clinical Relationships

Stroke is the third leading cause of death in the United States with about 137,000 deaths attributable to stroke every year. Carotid artery stenosis is one of the principal risk factors for stroke, and patients with severe asymptomatic stenosis have annual stroke rates between 2% and 5%. Carotid endarterectomy (CEA) is the most common procedure performed to alleviate stenosis and prevent stroke with an estimated 99,000 inpatient endarterectomies performed throughout the US in 2006. CEA is also a common procedure performed in the VA. A preliminary tabulation of VA inpatient and outpatient administrative records from FY2009 performed by our study team revealed approximately 10,000 unique VA patients with diagnosis codes for carotid stenosis and 2,500 with procedure codes for CEA.

Impact/Significance

At the present time it is not known how many carotid endarterectomy (CEA) procedures are performed in the VA on patients with asymptomatic carotid disease and how many are performed on patients with moderate stenosis of the carotid artery. Most importantly, given the advances in medical management in the last 10 years, it is not known for which subpopulations the benefits of these procedures outweigh the risks. This project would address these gaps in our knowledge with respect to CEA. VA patients would benefit from the study because better information would support improved decision making about patient level treatment. Optimal care for carotid disease depends substantially on life expectancy and comorbidity burden. This research would quantify how the presence of comorbid conditions affects the risks and benefits of CEA under current medical management practices.