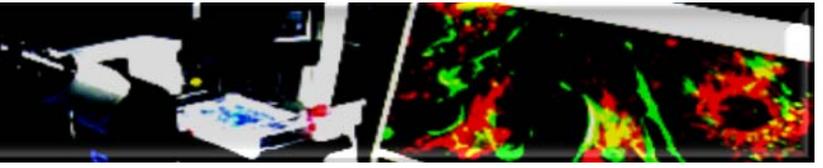


Research



Diagnosis and Prevention of Sleep Apnea in Cerebrovascular Disease

Project Team

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The Need

The primary aims of this project are to evaluate whether a diagnostic and therapeutic intervention strategy among veterans with cerebrovascular disease, hypertension, and obesity that consists of using unattended polysomnography to diagnose sleep apnea and auto-titrating CPAP with a targeted adherence evaluation and educational protocol to treat sleep apnea results in:

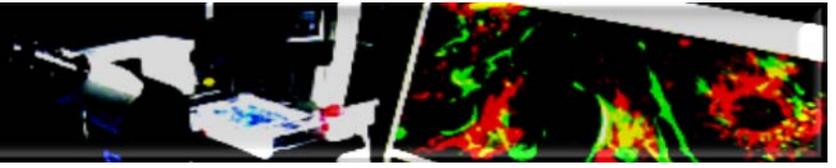
1. Improved rate of diagnosed sleep apnea. We hypothesize that unattended polysomnography will increase the rate of diagnosed sleep apnea from 10% (usual care) to 60% (intervention).
2. Improved rate of treated sleep apnea. We hypothesize that the intervention will increase the treatment rate among patients with sleep apnea from 15% (usual care) to 50% (intervention).
3. Reduced hypertension. We hypothesize that intervention patients compared with usual care patients will have a 10mm Hg lower mean 24-hour systolic blood pressure.

The secondary aims are: 1) to determine whether the intervention strategy is effective in reducing the number of antihypertensive medications, 2) to collect cost data in support of a cost-effectiveness evaluation if the intervention strategy is found to be effective in the primary analysis, and 3) determine whether the intervention strategy is effective in reducing daytime sleepiness.

Systems-Research Tools

We will use the electronic medical databases to identify patients at two VHA medical centers with cerebrovascular disease who have hypertension, and obesity and randomly assign N=167 to the intervention arm and N=167 to the control (usual care) arm. Patients in the intervention arm with evidence of sleep apnea will receive auto-titrating CPAP therapy for one year. Control patients will receive usual care and their primary care providers will be notified that they are at risk of having sleep apnea; control patient will receive unattended polysomnography at the end of the one-year study period. Twenty-four hour blood pressure will be measured in both groups at baseline and after one-year. The primary outcomes are sleep apnea diagnosis rate, sleep apnea treatment rate, and mean 24-hour systolic blood pressure. The sample size provides at least 80% power to detect the hypothesized differences in the primary outcomes between the intervention and usual care arms.

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Project Overview

Sleep apnea is common among veterans, occurs in the majority of patients with cerebrovascular disease (stroke or transient ischemic attack patients), is a cause of hypertension, and is associated with recurrent stroke and death. Continuous positive airways pressure (CPAP) safely and effectively treats sleep apnea. Unfortunately, few veterans with cerebrovascular disease are identified as having sleep apnea or offered treatment, perhaps due to the general under-diagnosis of sleep apnea or to the long wait times for polysomnography.

The Impact on Veterans

The results of this study may improve care for veterans with cerebrovascular disease across the Veterans Health Administration (VHA) system by overcoming barriers to the diagnosis and treatment of sleep apnea. The intervention strategy has been designed to be feasible to institute across the spectrum of VHA medical centers. The results will be disseminated using both the Stroke QuERI infrastructure and the National VA Sleep Field Advisory Group.

**Department of
Veterans Affairs**

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Affiliated Centers:

Indiana University-Purdue University at Indianapolis

Center for Health Services & Outcomes Research

<http://www.indyhealthservicesresearch.org/>

National Stroke QuERI Coordinating Center

<http://www1.va.gov/stroke-QuERI/>

West Haven VA Medical Center

Clinical Epidemiology Research Center (CERC)

<http://www.cerc.med.va.gov>

