ARIC MANUSCRIPT PROPOSAL FORM

Manuscript #534S

1. a. Full Title: Recognized Sleep Apnea in the SHHS Cohort
   b. Abbreviated Title: Recognized SA in SHHS

2. Writing Group (list individual with lead responsibility first):
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3. Timeline:

   Target start date as soon as Coordinating Center is available for analysis; finish date as outlined in the SHHS procedures.

4. Rationale:

   Sleep apnea is considered by some as a major public health problem. In attempts to estimate the magnitude of the problem, the National Commission for Sleep Disorders Research report that only 36 ICD9 codes for sleep apnea in an administrative database containing approximately 10 million hospital discharges from 1985-1987. This low number is understandable since OSA is often managed in the out-patient setting and without recognized impact on reimbursement for hospital stays. Yet, community studies of OSA for epidemiological purposes, comprising nearly 9000 individuals contacted from 1981-93, very rarely or never encountered participants with doctor-recognized OSA, even in those individuals found to have increased apneic activity and characteristic loud snoring (personal communication from T. Young, S. Ancoli-Israel, D. Bliwise). A 1991 survey of patient charts from 10 internal medicine and family practice clinics in Northern California found no mention of sleep apnea or sleep disorders, an observation suggesting the absence of any recognition strategy in primary care providers. Only in one managed care setting, between 1991 and 1994, has it been found that the rate of new patients undergoing sleep studies increased 30% per year, resulting in recognition of perhaps 10-30% of individuals in the health management organization estimated to meet minimal criteria for OSA (James deMaine and Rob Sandblom, personal communication). Sleep apnea and sleep disorders do not make expert surveys that identify “important” diseases by expert panels identifying areas which need further outcomes research or practice guidelines.
In contrast to this lack of clinical recognition, national and international epidemiologic surveys of sleep apnea suggest that the prevalence of illness, defined as an AHI>5/hr accompanied by symptoms of daytime somnolence are on the order of 2-6% 5-15, including two reviews). There are pockets of increased prevalence if one examines the older individual; those with obesity, or persons with hypertension and/or other cardiovascular risk factors (left ventricular hypertrophy, myocardial infarction, and male sex). The small amount of available evidence suggests that the recognition and treatment of OSA will improve certain cognitive deficits, risks of accidents from sleepiness, and adverse cardiovascular events.

The SHHS is a contemporary study of several cohorts already studies for various cardiovascular risk factors. As a result one might expect some degree of recognized sleep apnea, present in the study units before specifically screening for sleep complaints and behavior. The number and distribution of these “found cases” would be the focus of this analysis.

5. Main Hypothesis:

The SHHS has the only prospectively collected data on the current “hit rate” for community recognized sleep apnea. This value and its parameters can be used to model the burden of OSA in regard to public health and for comparison to other countries or cohorts, now and in the future.

The SHHS Sleep Habits Questionnaire (n=11000) permits an analysis of recognized cases against a larger group in which similar demographic and symptomatic data has been gathered. I would like to address the following questions:

i. What is the rate of doctor-told-me-I-had-OSA cases in those who answered the Sleep Habits Questionnaire?

ii. Does this “hit rate” for OSA correlate with …region (using the different cohorts as surrogate markers)? …race? …gender?…age?…cardiac risk factor?

iii. How does this “hit rate for OSA compare … to the prevalence of other chronic diseases in the cohort? …to the rate of obesity as defined by BMI?

iv. In those who answered the Sleep Habits Questionnaire, do those with “doctor recognized OSA” differ from the entire group in respect to age, sex, weight, and symptoms of snoring, observed apneas, and sleepiness?

v. In those with “OSA” and undergoing PSG ( the smaller group 39), does the distribution of RDI values differ from RDI values of all those with PSGs (n=2000)?

6. Data (variables, time window, source, inclusions/exclusions):

Descriptive statistics and group comparisons (ANOVAS and contingency table analyses).