Manuscript #379

1. Title:
Prevalence and risk factors of clinically significant carotid artery narrowing

2. Authors:
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3. Background:
Atherosclerotic carotid artery narrowing (stenosis) is an important risk factor for stroke. Recent clinical trials suggest a clear benefit for surgery both for symptomatic and asymptomatic high grade carotid stenoses. (These two, however, carry different levels of risks for ipsilateral ischemic events.) According to the results of the Asymptomatic Carotid Artery surgery trial (ACAS), asymptomatic carotid stenosis might warrant surgical therapy, with superiority of this treatment vs medical management (1). However, the prevalence of high grade clinically significant luminal narrowing in a general population has only been documented in small studies, clinically selected populations or in publications not reported in English. In addition, the risk factors associated with clinically significant carotid disease (luminal narrowing) as well as ethnic differences are not sufficiently understood. The identification of possible high risk subgroups of the general public for screening of such disease will be crucial to establish cost-effective application of sonographic screening methods. There is an ongoing debate concerning the low prevalence of this disease. Even though ARIC was not designed to yield extensive information about the far end of the carotid disease spectrum (i.e. significant luminal narrowing), clinical alerts have been called by review of video taped studies. The data generated through these reviews is unique both within ARIC as well as in the world literature.

4. Specific Aims and Hypotheses:
1) Document the prevalence by race and gender of morphologically or hemodynamically significant obstruction in the carotid arteries in ARIC.
2) Determine risk factors for occurrence of carotid stenotic disease by means of multiple logistic regression techniques. Risk factors considered include: older age, male gender, white race, BMI, elevated LDL, lowered HDL, and low alcohol intake.
3) Determine the prevalence of clinically significant carotid disease in subjects with symptomatic cardiovascular and symptomatic cerebrovascular disease. This includes both baseline and incident disease between baseline and visit 3.

5. Methods:
ARIC alerts have been called by sonographers and are read by clinical neurology reviewers (Drs. Tegeler and Knappertz). Rarely, ARIC ultrasound B-mode readers have alerted scans after they were performed and caused review by the clinical reviewers. Alert criteria were defined as sonographer judgment of less than 2 mm lumen of difficulty in determining this fact. Then, all tapes were reviewed by the clinical reviewers. Reader criteria for significant carotid disease for clinical alert status was based on screen measurement of the residual CA lumen seen on optimal views with <2 mm lumen and/or a focal Doppler frequency shift of >6kHz systolic. Reading of clinical alert data for visit 3 is now completed (As of 3/1/96).

6. Data Requirements:
Risk factors and clinical status at baseline and visit 3 of all subjects in ARIC and of all subjects with alert status.
7. Timeline:
Immediate
First presentation for Spring 1997.
Final Manuscript Summer 1997.

8. Literature:
A review of the existing literature underscores the need for this information of which ARIC alert data will yield good insight for a representative cohort. (All studies from 1980 - 1995, n>100, on prevalence of CS in normals and/or general population through Medline search, English speaking articles are highlighted)

REFERENCES