089

LIFE STYLE AND EMERGING RISK FACTORS AND 10-YEAR RISK FOR CORONARY HEART DISEASE. *U A Ajani, E S Ford, and L C McGuire (Centers for Disease Control and Prevention, Atlanta, GA 30341)

Appropriate risk assessment is an important step in prevention of coronary heart disease (CHD). The Framingham risk score has been used for CHD risk assessment. Recently, additional risk factors, not included in this algorithm, have received increased attention and may help improve risk assessment. We calculated 10-year CHD risk (<10%, 10–20%, and >20%) for 8355 participants from the National Health and Nutrition Examination Survey 1999–2002 using the Framingham risk score as modified by the National Cholesterol Education Program Adult Treatment Panel III guidelines. The prevalence of life-style risk factors (body mass index and waist circumference) and other emerging risk factors (C-reactive protein, white cell count, fibrinogen, homocysteine, glycosylated hemoglobin, and albuminuria) within each of the three 10-year CHD risk category was examined. All CHD risk factors included in this study were significantly associated with increasing 10-year risk among men and women. Means for most risk factors were higher for women than men. Sizable proportions of participants with a 10-year CHD risk <10% had high levels of life-style and emerging risk factors: 60.8% were overweight (body mass index ≥25 kg/m^2), 33.8% had high C-reactive protein concentration (>3 mg/L), 24.1% had serum fibrinogen >400 mg/dl and 6% had albumin/creatinine ratio ≥30 mg/g. Among participants with a 10-year CHD risk of 10–20%, 74.1% were overweight, 40.6% had high C-reactive protein concentration, 28.7% had serum fibrinogen >400 mg/dl and 10.2% had albumin/creatinine ratio ≥30 mg/g. Our results provide important information about distribution of life-style and emerging risk factors by 10-year CHD risk. These findings raise important issue about level of CHD risk among those considered at low or moderate 10-year risk: Life-style and emerging risk factors, in addition to those included in Framingham risk scoring, may be important in CHD risk assessment.

090

SMOKING STATUS IS STRONGLY ASSOCIATED WITH THE OCCURRENCE OF SECONDARY CARDIOVASCULAR DISEASE EVENTS: ESTIMATES BASED ON SELF-REPORTS AND SERUM COTININE MEASUREMENTS. *D Twardella, D Rothenbacher, H Brenner (German Center for Research on Ageing, 69115 Heidelberg, Germany)

The aim of the analysis was to evaluate the association between smoking status and the occurrence of secondary cardiovascular disease (CVD)-events in patients with coronary heart disease (CHD) using self-reported data as well as a biomarker (serum cotinine) to determine smoking status and accounting for change in smoking status during the follow-up period. The analysis was based on a prospective cohort study in 1206 patients after acute coronary syndrome or coronary revascularization procedure. Patients were recruited during in-patient rehabilitation (rehab) between January 1999 and May 2000 and followed for three years. Self-reported smoking status and serum cotinine levels were obtained during rehab and one year after rehab discharge. Data on the occurrence of CVD-events (myocardial infarction, stroke, cardiovascular death) were obtained one and three years after rehab discharge from the patient's primary care physician and, if deceased, cause of death was extracted from death certificates. In the Cox proportional hazards model the self-reported smoking status at rehab was significantly associated with CVD-events (p-value for trend: 0.02). This association became even stronger when patients were reclassified according to their serum cotinine level and additionally, when patients who changed smoking status during follow-up were excluded. Hazard ratios were 0.42 (95% Confidence interval (CI) 0.15–1.15) for recent quitters, 0.52 (95% CI 0.25–1.08) for former smokers and 0.26 (95% CI 0.11–0.62) for never smokers, compared to continued smokers (p-value for trend: 0.005). Therefore, the impact of smoking on prognosis of patients with CHD might be even stronger than suggested by previous studies which mostly relied on self-reports of smoking status only. The support of smoking cessation and the prevention of relapse are of major to improve prognosis in patients with CHD.

092

EVIDENCE FOR ALLOSTASIS: HOW DECREASED PLATELET SENSITIVITY PREDICTS INCREASED STROKE RISK. *D S Sharp, Y Ben-Shlomo, A D Beswick, M E Andrew, P C Elwood (Centers for Disease Control and Prevention, Morgantown, WV 26505)

The Caerphilly Prospective Study demonstrates a paradoxical association of *increased* thromboembolic stroke risk with *decreased* whole blood adenosine diphosphate (ADP) induced platelet sensitivity (*Br J Hematol* 2001;113:514–20). A new analysis of this association examines whether other hematological indices and prevalent disease at baseline explain this finding. Of 1,506 men free of cardiovascular disease at baseline, 85 manifest a thromboembolic stroke event over 8.3 years of follow-up. The paradoxical findings are confirmed and associations are slightly stronger after accounting for red cell, platelet, and white cell indices; age-adjusted relative risks increasing from 1.41 [95% Confidence Interval: 1.05, 1.89] to 1.54 [1.11, 2.14]. A U-shaped relation of stroke with platelet count is also noted. In contrast, 55 men prevalent for thromboemoblic stroke at baseline demonstrate *increased* platelet sensitive. These new findings are consistent with the existence of sub-clinical endothelial disease and established compensatory mechanisms down-regulating ADP-induced platelet aggregation sensitivity. They support an allostasis model of causality for understanding the paradox. A public health approach to prevention could have measurable impact if intervention strategies can be developed to alter early stages of disease appropriate to such mechanisms of causation.

093

EFFECT OF PRE-EXISTING STATIN USE ON IN-HOSPITAL MORTALITY AND FUNCTIONAL STATUS AT DISCHARGE IN ISCHEMIC STROKE PATIENTS. *M J Reeves, A Mullard, J Gargano for the MASCOTS Investigators (Michigan State University, East Lansing, MI, 48823)

There is increasing evidence that patients who are on treatment with statins have better outcomes following an ischemic stroke (IS). These positive effects may be related to several neuroprotective and anti-inflammatory mechanisms. Our objectives were to examine the effects of pre-existing statin use on stroke outcomes in a prospective registry of hospitalized IS patients. A representative sample of 16 Michigan hospitals was obtained as part of a prototype for the Paul Coverdell National Acute Stroke Registry. At each hospital, all acute stroke admissions between May – November 2002 were prospectively identified. Information on past medical history (PMH), current medication use (including statins), and pre-stroke functional status were collected. Primary outcomes of interest were in-hospital mortality and moderate-severe disability at discharge (modified Rankin scale >3 vs. < 2). Logistic regression analyses were use to quantify the effect of pre-existing statin use on mortality and functional status, adjusting for potential confounding variables. Of 1,504 IS patients, 22% were taking statins prior to hospitalization. Subjects on statins were significantly more likely to be 60–79 years old, have a PMH of stroke, coronary heart disease, hypertension, or diabetes. After adjustment, IS patients on statins at admission were 67% less likely to die in-hospital (adjusted odds ratio [aOR] = 0.33 (95% CI 0.15 – 0.72), and were 27% less likely to have moderate or severe disability at discharge (aOR=0.73 [95% CI 0.56 – 0.96]), compared to IS patients not on statins at admission. In this statewide registry, use of statins prior to an IS improved short-term outcomes. These positive effects remained despite adjustment for known confounding variables. These findings lend support for randomized trials to evaluate the efficacy of either pre-treatment with statins or the early initiation of statin therapy in IS patients.

* = Presenter; S = The work was completed while the presenter was a student

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