

range from 11-100%, while no woman's objective medical risk was greater than 50%. Over 30% of high risk women were defined as having a level of psychological distress consistent with the need for counseling. Women who reported more barriers to screening, fewer social supports, low social desirability, and higher perception of risk had more psychological distress (Multiple R=.64). Higher anxiety was directly related to poor surveillance behaviors. These data confirm previous reports of higher anxiety and less adherence to all three screening behaviors in high risk women. Targeted interventions to reduce anxiety and improve surveillance behaviors need to be developed if breast cancer is to be detected at the earliest stage.

**Paper Session III  
Psychosocial Predictors of Heart Disease: Longitudinal Studies Confirm Early Theories**

**DEPRESSION AND CORONARY DISEASE IN DIABETIC PATIENTS: 10-YEAR FOLLOW-UP**, R.M. Carney, Ph.D., K.E. Freedland, Ph.D., P.J. Lustman, Ph.D., L.F. Griffith, M.S.W., Washington University School of Medicine, St. Louis

Major depression is prevalent among patients with diabetes mellitus (DM) as well as in patients with coronary heart disease (CHD). The purpose of this study was to determine whether depression increases the risk of CHD in patients with DM. Thirty-eight depressed and 32 nondepressed diabetic patients who were originally assessed in 1982 for a study of major depression in diabetes, all of whom were free of clinically-apparent CHD at baseline, were followed for 10 years. Fifty-two percent of the nondepressed and 40% of the depressed patients were insulin dependent at baseline. There were no differences between the nondepressed and depressed groups in age, duration of diabetes, or in the prevalences of hypertension or hyperlipidemia. There was a nonsignificant trend towards a higher rate of cigarette smoking in the nondepressed than in the depressed patients (41% vs. 60%,  $p=.15$ ). Sixty-four percent of the nondepressed and 89% of the depressed patients were women ( $p=.009$ ). The mean age of onset of depression was  $26.5 \pm 10.7$  years.

Five (15%) of the nondepressed and 15 (39%) of the depressed patients were found to have CHD at the ten-year follow-up ( $p=.02$ ). Age and hypertension were the only other significant predictors of CHD ( $p=.0001$  and  $p=.006$ , respectively). These results suggest that major depression may be a risk factor for coronary heart disease among patients with diabetes. Depression may be a particularly important risk factor for diabetic women, as rates of depression tend to be higher among women than men. A larger population-based study is needed to confirm these findings.

**THE ASSOCIATION OF ALEXITHYMIA WITH ALL-CAUSE MORTALITY: PROSPECTIVE EPIDEMIOLOGIC EVIDENCE**  
J. Kauhanen, M.D., GA Kaplan Ph.D., J. Julkunen Ph.D., JT Salonen, M.D., University of Kuopio, Finland, and Human Population Laboratory, Berkeley, CA.

Previous research has shown that alexithymia, inability to identify and verbally express inner feelings, associates cross-sectionally with various somatic disorders. Our aim was to investigate, whether the association of alexithymia with health can be observed in general population and in a prospective study design. A population based sample of 42-60 year old men ( $n=2253$ ) from eastern Finland (participants of the Kuopio Ischemic Heart Disease Study KIHDS) was examined for alexithymia using the Toronto Alexithymia Scale (TAS). Information was also obtained of their socioeconomic status, previous diseases, and behavioral lifestyle. Using the vital statistics of the National Death Registry, we examined alexithymia with respect to all-cause mortality in an average follow-up time of five years. Cox proportional hazards models were applied for statistical analyses

checking for proportionality assumption. The results indicated that the TAS was related to increasing mortality when age was controlled for; the risk of death was 2.5 times higher ( $p<0.02$ ) for the 20 % of men who had the highest alexithymia scores as compared to the least alexithymic quintile. In a series of nested models, adjustment for social status (income) dropped the coefficient by 13 %, and adjustment for smoking another 10 %, but the relative risk of death between the highest and lowest TAS quintile remained statistically significant (RR 2.0,  $p<0.05$ ). With further adjustments for alcohol consumption and 31 prior diseases the relative risk dropped to 1.9 ( $p<0.1$ ). The findings suggest that high alexithymia is a marker of increased mortality in middle-aged men. Variation in behavioral factors, socioeconomic position, and prior diseases seems to explain part, but not all, of the association. Alexithymia may be a part of a larger picture, where behavioral and psychosocial factors form an unfavorable cluster leading to premature loss of life among men.

**POST-MI DEPRESSION AND 6-MONTH PROGNOSIS**, N. Frasure-Smith, Ph.D., and F. Lesperance, M.D., Montreal Heart Institute and McGill University Department of Psychiatry, Montreal, Canada HIT 1C8

We previously found that a DSM-III-R symptom-based diagnosis of major depression in hospital following myocardial infarction (MI) substantially increases the 6-month risk of death. This increase is not explained by cardiac risk factors including left ventricular dysfunction and previous MI. Some DSM-III-R symptoms (appetite and sleep disturbances) are experienced by most patients and may simply reflect the hospital experience. We sought to determine whether defining depression without these symptoms would alter results. **Methods.**-A modified version of the National Institutes of Mental Health Diagnostic Interview Schedule (DIS) for major depressive episode was administered 5 to 15 days post-MI to 222 patients. They were followed for 6 months. Cox proportional hazards regression was used to evaluate the impact of DSM-III-R depression (DSMDEP; defined as sadness or loss of interest plus enough of the following clusters to yield a total of 5: weight/appetite changes, sleep disturbance, cognitive problems, agitation/retardation, fatigue, guilt, death thoughts) as well as depression defined without sleep and appetite/weight disturbance (NEWDEP). **Results.**-By 6 months 12 patients died, all from cardiac causes. While DSMDEP ( $n=35$ ) was a significant predictor of mortality (hazard ratio =  $5.74 \pm 1.13$ ,  $p=.0006$ ), 58% of all patients reported sleep difficulties and 77% had appetite/weight disturbances. NEWDEP ( $n=31$ ) was at least as good a predictor as DSMDEP ( $6.70 \pm 1.13$ ,  $p=.0001$ ). The impact of both definitions of depression remained after control for Killip class and previous MI (the significant multivariate predictors of death). For DSMDEP the adjusted hazard ratio was  $4.29 \pm 1.15$  ( $p=.013$ ) and for NEWDEP it was  $5.14 \pm 1.15$  ( $p=.0075$ ). **Conclusion.**-Major depression in hospital following MI is an independent risk factor for mortality at 6 months. This impact remains even after symptoms which could be related to the hospital environment are removed. The impact of depression is at least equivalent to that of Killip class and history of previous MI. Additional study is needed to determine whether treatment of depression can influence post-MI survival, and to assess possible underlying mechanisms.

**Functional Status in Coronary Artery Disease: Biomedical and Psychosocial Correlates**, MD Sullivan, M.D., AZ LaCroix, Ph.D., C Baum, M.D., M.P.H., WJ Katon, M.D., A Resnick M.D., E Wagner M.D., M.P.H., University of Washington and Center for Health Studies of Group Health Cooperative of Puget Sound, Seattle, WA

**Purpose:** To determine the relative contribution of biomedical and psychosocial factors to functional impairment in patients with documented coronary artery disease (CAD). **Method:** 231 HMO members aged 45-80 with treadmill testing and cardiac catheterization demonstrating greater than 50% occlusion in a major coronary vessel were assessed for functional and psychosocial status at the time of their catheterization. Subjects were included only if CAD was their most disabling illness. Functional status was assessed through the Medical Outcomes Study SF-36. Psychosocial assessment focused on three variables: 1) depression and anxiety (Hamilton anxiety and Depression Scales), 2) CAD-related self efficacy, 3) enabling vs disabling support from spouse. Multiple stepwise regression models were fit using psychosocial variables to predict functional status. In each model age, sex, and education were entered first with subsequent biomedical and psychosocial variables entered according to