Psychosocial and stress-related aspects on Ischemic Heart Disease

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Avhandlingen baseras på följande arbeten:

I.   Bengtsson I, Hagman M, Wedel H. Age and angina as predictors of quality of life after myocardial infarction: a prospective comparative study. Scand Cardiovasc J. 2001; 35(4):252-8.

II. Bengtsson I, Hagman M, Währborg P, Wedel H. Lasting impact on health-related quality of life after a first myocardial infarction. Int J Cardiol. 2004; 97(3):509-16.

III. Bengtsson I, Lissner L, Ljung T, Rosengren A, Thelle D, Währborg P. The cortisol awakening response and the metabolic syndrome in a population-based sample of middle-aged men and women. Metabolism. 2010; 59(7):1012-9.

IV. Bengtsson I, Karlson BW, Herlitz J, Evander MH, Währborg P. A 14-year follow-up study of chest pain patients including stress hormones and mental stress at index event. Int J Cardiol (2010). In press.

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Abstract

Objective: To study different aspects of ischemic heart disease (IHD) i.e. stress related risk factors, biochemical markers of stress, in particular the cortisol awakening response (CAR) and outcome in terms of health related quality of life (HRQoL).

Methods: 72 myocardial infarction (AMI) patients took part in the HRQoL studies. From a subsample of a population-based cohort of Swedish adults 194 men and women, 15% with the metabolic syndrome (MetS), took part in awakening cortisol sampling. The risk factor study was conducted on 290 previous chest pain patients. Assessment of HRQoL was via questionnaires (SF-36, CHP, Zung). CAR was performed by measuring salivary cortisol and medical records or death certificates were read identifying ischemic heart or cerebrovascular disease during 14-years of follow-up.

Results: Patients < 59 years improved in SF-36 Physical Component scores (PCS) but not in Mental Component scores (MCS), and scored significantly below community norms in both PCS ($\overline{x}$=44.7, CI 40.6–48.7 vs. $\overline{x}$=50.3, CI 49.3–51.4) and MCS ($\overline{x}$=45.9, CI 41.8–49.9 vs. $\overline{x}$=51.3, CI 50.3–52.4) at 6 months. Predictors for MCS were age (p=0.03) and Vitality (p=0.02). Predictors for PCS were Physical Function (p=0.01) and CCS angina scores ($p < 0.001$). Angina was negatively related to HRQoL. Patients < 59 years reached community norms in PCS after 2 years but scored significantly below norms in MCS throughout with an effect size of -0.5 (CI -0.88 to -0.14) at 2 years. In patients $\geq$ 59 years, no changes took place after 6 months. A significant difference in CAR% was found between men and women with MetS, $\overline{x}$ ($\pm$SE) = 38.5 (13.1)% and 91.4 (17.0)%, p=0.02. Women with the MetS awoke with the lowest cortisol level $\overline{x}$ ($\pm$ SE) = 8.92 (0.96) nmol.L^{-1}. Women without MetS had a CAR% of 36.5 (5.7)% and a awakening cortisol level of 12.33 (0.69) nmol.L^{-1}. The values for men were 38.5 (13.1)% and 36.0 (6.1)%. 74 patients had died or been hospitalised with a diagnosis of IHD or cerebrovascular disease. Age (OR 1.1, CI 1.1–1.2), previous history of angina pectoris (OR 9.7, CI 2.1–71.6), pathological ECG at ED (OR 3.3, CI 1.2–8.7), hypertension (OR 5.0, CI 1.9–13.8) and smoking (OR 3.0, CI 1.3–7.6) were all associated with future IHD or cerebrovascular events. Noradrenalin (NA) levels were highest in the event group compared with the non-event group, $\overline{x} \pm$ SD 2.44 (1.02) versus 1.90 (0.75) and lowest in the non-participants 1.80 (0.61) nmol.L^{-1}. Cortisol values were lowest in the event group, $\overline{x} \pm$ (SD) 377(133) nmol.L^{-1}.

Conclusion: Inferior health in younger compared to older AMI patients in mental health domains of HRQoL was detected as was a sex difference in the cortisol awakening response between men and women with MetS. Traditional risk factors were found to predict future diagnosis of ischemic heart or cerebrovascular disease 14 years after a hospital visit for chest pain.

Key-words: *Ischemic heart disease, risk factors, stress, cortisol awakening response, HRQoL*