

Work and Heart Disease

If working conditions have even a small effect on the risk of coronary heart disease then methods of assessing them should take their place amongst techniques used to reduce risk amongst patients with hypertension.

Work causes heart disease

Psychosocial aspects of work, particularly a combination of heavy demands, and low control over work content and workplace ('job strain') increase the risk of death from coronary heart disease (1). Social support – at work or at home – mitigates the effects of job strain, whereas a long working week is an independent risk factor for cardiovascular disease.

Conventional risk factors for cardiovascular disease such as high blood pressure have also been linked to aspects of the working environment.

New research

Research in this field is progressing rapidly. Marmot and his group in the Whitehall II studies on civil servants (2) have shown that an imbalance between work effort and rewards (both financial rewards and status) independently predicts risk of heart disease.

Recent evidence has also increased our understanding of the mechanisms, which link stress at work to illness and death from cardiovascular disease. Stress causes increased arousal and prolonged preparedness (the defence reaction) which if unresolved leads to exhaustion or 'defeat'. The physiological signs of these responses are the neural and hormonal mechanisms linking the brain to the heart and circulatory system. Cardiac arrhythmia, left ventricular hypertrophy and changes in blood clotting properties are amongst the outcomes of these processes.

Ambulatory blood pressure and work

The connection between blood pressure and work has advanced through use of ambulatory blood

pressure (ABP) monitoring. ABPs are better predictors of damage to the heart and circulatory system than casual blood pressure measurements. Systolic and diastolic blood pressures increase after waking. Mean values are higher for workers in high strain jobs.

Blood pressure remains high for longer amongst workers who work long hours, combine family and work commitments or take work home. Shift work not only displaces the rise, but the fall in blood pressure away from work is less marked than for daytime workers. Periods of intense stress at work; excessive hours, increased workload, or imminent job loss are reflected in higher blood pressures. The implication of these findings is that blood pressure measurements taken at work may be telling us more about work stressors than about non-occupational lifestyle factors.

Interventions are worthwhile

A few intervention studies have been designed to establish whether cardiovascular risk factors and outcomes can be influenced by changes at work. Most such studies have been 'natural experiments'. Bus drivers on higher and lower stress bus routes in Copenhagen and elsewhere have been found to have striking differences in their risk of ischaemic heart disease. Longer periods of high job strain are associated with continuing increases in blood pressure, and moves from high to low strain jobs are associated with clinically significant drop in blood pressure.

Recent reviews have shown many benefits from psychosocial interventions at work and though the evidence available to date is limited, health workers should address workplace risk when talking to patients and screening for cardiovascular disease (3).

This bulletin is produced by Sheffield Occupational Health Project. We aim to provide advice tailored to the needs of clinical workers primary care in the Sheffield area. In addition we will feature in each issue the work of a local specialist or group with a particular area of interest in occupational health.

For more information on any item contact SOHAS at the address below

An occasional publication, free to workers in primary care in the Sheffield area

Occupational Health update

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This is the first in a series of leaflets on stress at work which form part of the Health Action Zone WORKPLACE HEALTH PROGRAMME.

Questions used in assessing psychosocial risk factors at work

There are now standard questionnaires available to assess aspects of work which have been linked to risk of heart disease. Questions from these survey tools can be used to assess patients' individual work situations. The following questions cover the main areas of interest.

Workload

- Is your current physical workload heavy?
- Is your job repetitive?
- Is your current workplace hectic?
- Is your job dangerous?
- Do customers, clients or patient make demands on you?
- Is your work psychologically demanding?

Control and opportunity to make decisions

- What influence do you have over decisions that affect the quality of life at work?
- How easy is it to change things you do not like about your job?
- How much control do you have over the pace at which you work?

Relationships at work

- Are you fairly treated at work?
- Are you discriminated against on the basis of gender, race, sexual orientation, disability or age?

Insecurity/ Change

- Are you concerned about losing your job in the next three years?
- Are you concerned about getting a job with as good conditions when you finish this job?
- How has your work changed over the last five years?

Social Support

- Do you feel isolated at work?
- Do you get good support at home and from friends

Rewards

- Are you satisfied with the pay level of your job?
- Are you satisfied with the respect that you get for doing your job?
- Does your job have meaning to you?

Working hours

- How many hours are you working per week?
- Do your working hours create conflicts with home commitments

Further Reading

1. Health Work: Stress, Productivity, and The Reconstruction of Working Life by Robert Karasek and Tores Theorell (Basic Books, 1990)
2. Hemingway H, Marmot M, Psychosocial factors in the aetiology and prognosis of coronary heart disease: systematic review of prospective cohort studies. BMJ (1999) 318: 1460-7
3. The Workplace and Cardiovascular Disease Ed. Peter Schnall, Karen Belkic, Paul Landsbergis and Dean Baker. Occupational Medicine: State of the Art Reviews: Vol. 15.1 January-march 2000 (Hanley and Belfus, Philadelphia, US).

For further information on interpreting the results of surveys using these questions contact SOHAS