



The risk of CAD in women

Atherosclerotic cardiovascular disease (CVD) is a chronic disorder that develops throughout life causing no symptoms. However, with progression to an advanced stage, symptoms of ischaemia appear, terminating in acute coronary syndrome (ACS) and a high risk of sudden death. Atherosclerotic CVD occurs in both men and women.

Interheart

The Interheart study evaluated the effect of CV risk factors in most regions of the world in a case-controlled study of acute myocardial infarction (AMI). The study included 52 countries representing every inhabited continent with 15 152 cases of AMI and 14 820 controls.

The findings showed that smoking accounted for 35.7% of the population-attributable risk (PAR), abnormal lipids for 49.2%, hypertension for 17.9%, diabetes for 9.9%, abdominal obesity for 20.1%, psychosocial factors for 32.5% and the rest made up

by lack of exercise, poor diet (mainly lack of fruit and vegetables) and lack of daily alcohol.

These associations were noted in both men and women. Collectively these nine CV risk factors accounted for 90% of the PAR in men and 94% of the PAR in women.

What is the problem in women?

CVD is the leading cause of death in women even though traditionally heart disease was considered a problem of men. Coronary heart disease (CHD) in women remains understudied, underdiagnosed and undertreated.

Since 1984, the annual CVD mortality rate in the United States has remained greater for women than for men. Obstructive CAD is the most important cause for MI in both sexes, but women also have more microvascular disease and more AMIs with non-obstructive CAD. Regardless of age, more women with an AMI will die within one year as well as five years after the MI event compared to men.

Coronary artery disease (CAD) is the leading cause of death globally and is regarded by some as a sort of epidemic that respects no borders and this epidemic is variable across the globe including developing countries in pattern, magnitude and timing.

It is vital that anyone who sees women as patients should screen them for the presence of CV risk factors. In a study of 3 501 patients, age below 55, who survived an AMI it was found that more than 60% had more than three CV risk factors, yet only about 46% were told that they were at risk to develop a MI and should get treatment, but much less women were told they were at risk and even less did receive any kind of preventative therapy before the MI.

Healthy lifestyles and behaviours must be emphasised in all women to control the four important CV risk factors associated with lifestyle and behaviour: Smoking cessation, increase physical activity to at least 150 minutes per week of moderate exercise, improve quality of the diet to include at least four to five helpings (cups) of fruit/vegetables per day and finally to reduce weight to the ideal of BMI of 25. In a large study from the United Kingdom evaluating one million women, it was shown that smoking reduces lifespan in women with at least 10 years overall. Although the hazards of continuing smoking in women until age 40 is substantial, the hazards of continuing smoking are 10 times greater. Stopping before age 40 avoids more than 90% of the excess mortality caused by continuing smoking. Cessation of smoking before age 30 has even more benefit

Mental health and stress reduction is important not to be overlooked as risk factors and treatment thereof is important.

The three health factors need to be treated if not controlled by changes in lifestyle and behaviour: Ideal BP below 120/80mmHg, ideal cholesterol below 5.0mmol/l and ideal normal blood glucose. Drug therapy for these three risk factors has been shown to reduce the risk of CVD significantly.

Cardiovascular prevention issues

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Cardiovascular disease is the leading cause of death in women even though traditionally heart disease was considered a problem of men.

At five years post-MI more women will have heart failure and stroke compared to men. Women are also more likely to have coronary artery dissection causing an ACS and women also have more acute coronary artery spasm causing myocardial ischaemia.

Despite all these differences women derive the same benefit from reperfusion therapies. However, women seem to have more bleeding risks and other complications from the therapy of ACS.

Cardiovascular risk factors in women

The American Heart Association (AHA) and American College of Obstetricians and Gynecologists (ACOG) published a significant document recently whereby they promote the identification and reduction of CVD in women.

Despite advances in the prevention and management of CHD, gender-based inequalities continue with women less likely to receive guideline-recommended testing and therapy and this happens with the background data showing an increase in CV mortality rates in women.

This document also states that we now know that about 90% of women have at least one CV risk factor for developing heart disease. We also now know that optimal prevention strategies should begin decades before clinical heart disease is evident.

CV risk factors may affect women differently. The population-adjusted risk of CV death is greater for women than men: 20.9% for women vs 14.9% for men. After age 65 women are more likely to become hypertensive than men and women are less likely to have adequate blood pressure management than men.

Hypercholesterolemia has a higher population-adjusted CV risk for women as compared to men and we have evidence that the response to statin therapy is similar in men and women.

Obese women have a higher CAD risk as compared to obese men. Depression has also

been shown to preferentially disadvantage women. Even smoking is a greater CV risk than men and smoking in women on oral contraceptives increases the CV risk. On the positive side it has been shown that exercise provides a greater protective effect for women compared to men.

Non-traditional risk factors in women

There are several clinical conditions that are not necessarily sex-specific but are female predominant such as systemic lupus, scleroderma and rheumatoid arthritis. These mentioned conditions, by virtue of the chronic low-grade inflammatory state that exists in these conditions, contribute to the development of atherosclerotic heart disease.

Breast cancer occurs mainly in women and its treatment in women also increase the risk of CVD with this risk manifesting as early as seven years after cancer diagnosis. This warrants screening and therapy for CV risk factors in women with breast cancer. CV death is an important competing risk for older women with early-stage breast cancer.

Sex-specific risk factors

There are several unique atherosclerotic CV risk factors for women, many related to pregnancy or hormonal. Adverse pregnancy-related outcomes are emerging as important predictors of future CVD. Conditions such as pre-eclampsia, gestational diabetes mellitus, gestational hypertension, preterm delivery and low birth weight are all possible indicators of future CVD.

Polycystic ovarian syndrome, menopausal status and hormone use are all possible risk predictors of CVD, yet none are taken up in traditional risk predictor charts. Post-menopausal hormone therapy and its influence remains a debate although recent Cochrane analysis did show a small risk of harm (increased coronary risk) when using combined hormone replacement. Oestrogen only usage does not seem to increase CAD risk. Individual evaluation of

women by a gynaecologist on this subject seems prudent.

Women's reproductive factors seem to increase the risk of CVD. In a study evaluating 500 000 women from the UK Biobank followed for seven years showed that CV risk is increased in later life with early menarche, early menopause, earlier age of first birth, history of miscarriage, still birth or hysterectomy.

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