Expert Q&A´s

Coronary artery disease (CAD)

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1. This is when plaque builds up in the arteries, is this the same kind of plaque that builds up on teeth?

No. Plaque on teeth is caused by the build up of a bacterial biofilm. Whereas plaque in coronaries arteries is cause by the build up of cholesterol and white blood cells within the arterial wall.

2. People with CAD can potentially not display any symptoms for years. Why is this?

The build up of plaque in coronary artery walls is a very slow process, it takes years to decades to grow from a small, barely visible lesion to one that is large enough to start to encroach on the artery lumen and thereby start to impede blood flow.

People will not develop symptoms until approximately 75% of the artery is blocked, and then only when the heart is under stress, e.g. during exercise when you need more blood flow and the artery cannot dilate enough to allow blood through.

Smaller plaques (that were not symptomatic) can cause problems if they rupture because the body will respond by forming a blood clot to cover the ruptured plaque. This can lead to complete occlusion of the artery and result in a heart attack.

3. CAD is the second leading cause of death for Australian women. How do menopause and PCOS contribute to CAD?

Prior to menopause, women have significantly lower risk of CAD than men of the same age. This is likely due to a combination of testosterone increasing the risk of CAD (in men) and estrogen/ progesterone providing some protection.

After menopause, the risk of CAD increases markedly in women. The exact means by which hormone levels affect CAD risk are not fully elucidated but likely involve effects on the function of the inner layers of the blood vessels (the endothelial layer).

PCOS, which affects hormone levels, is associated with an increased incidence of obesity and diabetes. These are likely significant contributors to the increased risk of CAD that is seen in PCOS patients.

4. Women with CAD present with symptoms approximately 10 years after men do. Post-menopause, the increase in the risk of CAD is related to a higher incidence of hypertension, diabetes, dyslipidemia and obesity so can it be managed with lifestyle changes alone?

In both men and women, it is generally not possible to manage hypertension, diabetes, dyslipidemia and obesity by lifestyle changes alone. If these problems are only mild then lifestyle changes may bring them back to acceptable levels but once they are of moderate or high severity then you will need medication - on top of lifestyle changes - to control them.

5. Women with CAD experience different symptoms to men, including shortness of breath, fatigue and back pain, why is that?

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6. How does high blood pressure, hypertension, contribute to CAD? Women are more susceptible to high blood pressure, it's more common in women than men after age 45 and confers a 4-fold risk of CAD in vs 3-fold in men.

High blood pressure puts mechanical stress on the arterial wall and especially on the inner layers (endothelial layer) of the artery. Over time the inner layers wear out and are not as good at protecting the arteries from build up of plaque.

It should also be noted that high blood pressure leads to a much higher risk of stroke and this is likely an even bigger problem that the increased risk of CAD.