

CT Calcium Score Scan for Early Coronary Heart Disease Detection



Written by Dr Chrystal Fong Chern Ying (MBBS Melb (Aus), FRACGP)

Family Physician

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Dr Chrystal's vision is to educate and motivate the individual and population towards better health outcomes.

Her mission is to help make sense of the rich Science articles that are important to health to the everyday person through her articles and to highlight the key health issues that affect you.

What is coronary heart disease and how common is it in Singapore?

Coronary artery disease (CAD), also known as ischaemic heart disease (IHD), occurs when the arteries that supply blood to the heart muscle (the coronary arteries) become hardened and narrowed. The arteries harden and narrow due to build-up of fatty deposits called plaque on their inner walls. The hardening of the artery walls is known as arteriosclerosis, while the build-up of plaque is known as atherosclerosis.¹

According to the health statistics from the Ministry of Health (MOH) registry, IHD is the 3rd leading cause of death in Singapore, accounting for 19.7% of all deaths.²

On average, 34 people have heart attacks and 23 people die from heart disease daily, and the numbers are projected to rise with a rapidly ageing population.

¹ <https://www.singhealth.com.sg/patient-care/conditions-treatments/coronary-artery-disease>

² <https://www.moh.gov.sg/resources-statistics/singapore-health-facts/principal-causes-of-death>

It is estimated that one in three Singaporeans may have underlying early heart disease that remains undetected.³

Who in particular is at risk of coronary heart disease and what are the symptoms to watch out for?

The risk factors for coronary heart disease can be classified into non-modifiable and modifiable risk factors.⁴

The non-modifiable risk factors include:

Age- A person's risk of developing cardiovascular disease increases with age.

Gender- Men generally face a much higher risk of heart disease than women. They also tend to suffer heart attacks earlier in life.

Three categories of women – namely, menopausal women, women taking oral contraceptives, and pregnant women – are particularly vulnerable to cardiovascular disease.

Family history - A family history of stroke or heart disease, especially if it occurred at an early age for the affected family member, is a strong risk factor for cardiovascular illnesses.

The modifiable risk factors include:

Hyperlipidemia ('high cholesterol')

Hypertension- Defined as greater or equal to 140/90mmHg measured on two or more occasions

Diabetes

Overweight/obesity- Singaporeans are at a greater risk of developing heart disease and diabetes when their BMI values are greater than 23 kg/m².

Smoking

Physical Inactivity

Unhealthy diet

Stress

³ <https://www.straitstimes.com/singapore/health/launch-of-nationwide-preventive-heart-health-study-to-help-pick-up-hidden-diseases>

⁴ <https://www.myheart.org.sg/health/risk-factors/>

Coronary Artery Disease- Symptoms

Depending on the severity of heart disease, you may or may not experience symptoms.

If you do experience symptoms, they may include:

- Shortness of breath or breathlessness on exertion or when lying down
- Decreased effort tolerance
- Pain in the neck, jaw, throat, upper abdomen or back
- Chest pain (angina) on exertion with or without radiation to the left arm
- Severe chest discomfort lasting more than 10 to 20 minutes

What is a CT calcium score scan and how important is it as a screening for coronary heart disease?

A coronary calcium scan is a low dose CT scan of the heart. It is used to produce images to measure how much calcium-containing plaque is in a person's arteries. This assists in assessing a person's risk of developing coronary heart disease.

Who needs a coronary calcium scan?

People who should have this test include those with the following risk factors:

- family history of heart disease
- obesity
- high cholesterol
- high blood pressure
- smoking
- high levels of stress

What can a person expect when undergoing a CT calcium score scan? Is there a danger of radiation exposure?

There is no special preparation for the scan.

The CT exam is painless, fast and easy.

There is no requirement for injection of contrast.

Electrodes will be placed on your chest to monitor your ECG (electrocardiograph)

The scan is done using a computerized tomography (CT) scanner.

You will lie on your back on a movable table. The table slides into a large machine shaped like a tube. Your head is outside the scanner the whole time.

You may be given medicine to slow your heartbeat. This helps create clearer images. If you are nervous or anxious, you may get medicine to relax you.

You need to stay still while the pictures are taken. You may be asked to hold your breath for a few seconds. The health care professional doing the test can see and talk to you the entire time. The test takes about 10 to 15 minutes.

After the procedure

You usually can drive yourself home and continue your daily activities after the test unless your doctor tells you not to do so.

The scan exposes you to low dose radiation, equivalent to the same amount of radiation exposure as a mammogram.

No radiation remains in a patient's body after a CT exam.

What other tests should patients go through annually if they are concerned about heart disease?

An annual health screening is recommended.

The other tests recommended for annual screening of heart disease may include:

Blood tests

Blood cholesterol, fasting glucose, Hba1c, lipoprotein a, lipoprotein b , full blood count , homocysteine, CK (creatinine kinase), liver function test, kidney function test, thyroid function test, hsCRP , urine albumin/creatinine ratio, vitamin D

ECG

Chest Xray

Exercise stress test

Echocardiogram

Nuclear stress test

Angiogram

Final Thoughts:

The next time you have your health screening done, spare a moment to reflect on your lifestyle habits and discuss with your doctor on ways to improve the above towards a better and healthier you and our planet.

'Towards better health outcomes'

About the author:

Dr Chrystal Fong Chern Ying (MBBS Melbourne, FRACGP) is currently practicing as a family physician at Asia HealthPartners under the subsidiary of Singapore Institute of Advanced Medicine (SAM) Holdings, located at Lucky Plaza, Orchard, Singapore.

Dr Chrystal Fong is listed on the editors list of health screening providers on Health365, a healthcare, wellness and aesthetic medicine publishing agency in Asia. She has a special interest in health prevention and incorporates sports psychology and lifestyle medicine principles in her health screening and advocacy in health promotion.

She will be featured in the Britishpedia's upcoming 6- edition of 'Successful People in Malaysia and Singapore'.

She is an active sports person who has keen interests in lifestyle medicine, medical technology and longevity themed medical care. She takes personal pride in living the lifestyle medicine pillars herself and advocating through her sports communities and social media platforms.

Her personal mantra being 'The world is changed by your example, not your opinion.'

Being certified in Wellness and Behaviour modification with International Sports Academy, her consultations incorporate health coaching methods.

She is a member of the Singapore College of Family Physicians, Singapore Medical Association, Singapore Society of Behavioral Health, Singaporean Society of Lifestyle Medicine, HIMSS (Healthcare Information and Management Systems Society).



<http://www.asiahealthpartners.com/>