

# NORTH SHORE RADIOLOGY & NUCLEAR MEDICINE

## Patient Information

### CT Coronary Angiogram (CTCA)

#### What is a CT coronary angiogram (CTCA)?

CT angiogram is a non-invasive imaging test where an injection of iodinated contrast dye is used to highlight the blood vessels and tissues around the heart. In this test we are able to get high resolution 3D images of your heart which are then reconstructed to produce images of your coronary arteries. At North Shore Radiology we state of the art CT scanners with the ability to reduce radiation doses of up to 80% compared to some conventional scanners.

#### Preparation

You must fast from food for 2 hours and ensure you are well hydrated with water; approximately 1 litre in the hour before. You may use the bathroom freely. You may take all of your medications as normal, however you must cease Viagra, Levitra and Cialis for 48 hours prior to your examination as it is contraindicated with a medication used for the procedure.

Please do not have **caffeine** 12 hours prior to the appointment (tea, coffee, fizzy drinks, chocolate etc). We want your heart rate to be as slow as possible for the study. As the heart moves, we need to collect data between the heart beats as this will provide the best images. Please bring details of any heart medications you are currently taking and heart surgery. You may take all of your medications as normal.

#### How long will it take?

This will depend on your heart rate prior to the procedure. Typically, you should not be in the department for more than 1 hour.

#### What to expect

Upon arrival you will be asked to complete a questionnaire to make sure you are not allergic to the intravenous iodinated contrast (X-Ray Dye) we use for the CT. You are then taken to the nurses' trolley bay where they will take your blood pressure and measure your heart. If your heart rate is too fast, you may be given a beta-blocker to slow it down. A needle/cannula will be placed in a vein to give the contrast (x-ray dye).

After you have entered the CT room, you will be positioned on the padded scanner table. This table will move so that your heart is in the middle of the scanner. The radiographer controls the examination from a separate room next to the scanner. You will be able to talk to them at all times.

A spray of glyceryl tri-nitrate will be given under your tongue to help dilate the coronary vessels and highlight these vessels for us to see. **Glyceryl tri-nitrate cannot safely be given if you have taken Viagra, Cialis or Levitra**). Sometimes the spray may give you a short term headache. Each scan will take only a few seconds to complete. You will be asked to hold your breath for the scans. It is important to obey any instructions given.

#### After Your Examination

The nurse will check your blood pressure and once you are feeling okay, the cannula in your arm will be removed by our nursing/technical staff. If medication was prescribed to you on the day, you may have a short term headache. Outside of this, you should feel no after-effects and you may resume your normal diet immediately. You are able to resume your normal activities, although we do ask that you avoid rigorous exercise for 12 hours following the test. The injection of intravenous contrast is excreted through your urine over the next 24-48 hours following your test. It is suggested you increase your water intake over this period to assist the excretion of dye from your kidneys.

As this test is co-reported between a radiologist and a cardiologist, the results can take a couple of days to be completed. These will be sent directly to your referring practitioner once the report is available.

#### Questions?

*You will be given the opportunity to ask any questions of the technicians or radiologist at the time of your procedure, however if you have any queries prior to the appointment, please feel free to contact us by phone or email – 02 9170 4500 or [contact@nsrnm.com.au](mailto:contact@nsrnm.com.au)*

If you have any questions regarding **why** the CTCA has been requested, these should be directed to your specialist or the doctor looking after you. We are happy to re-schedule your booking so you can discuss it with your doctor.

## Patient Information

### Medications used in CT Coronary Angiogram

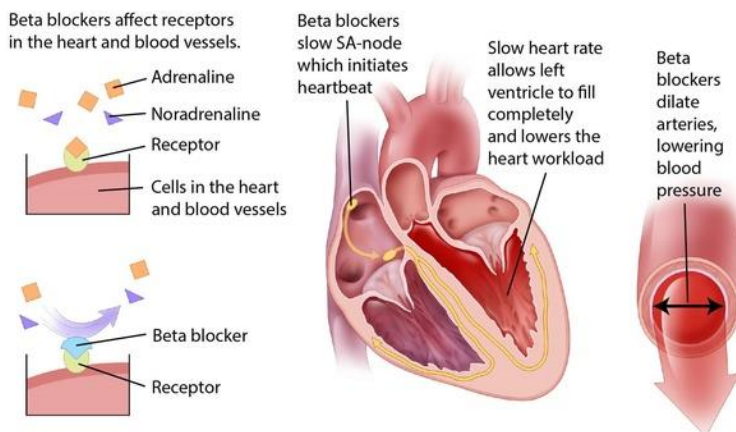
North Shore Radiology CT Department uses the following medications to ensure diagnostic CT Coronary scans at lower radiation doses.

1. Beta Blockers i.e Metoprolol
2. Ivabradine i.e Coralan
3. Glyceryl Trinitrate – GTN (Nitrolingual Spray)

If a patient has a resting heart rate that is above 65 beats per minute, medication may be prescribed to slow down the patient's heart rate for the CT Coronary Angiogram. All patients will receive a spray of GTN before their study unless contraindicated.

#### What are Beta Blockers?

Beta Blockers are a class of drugs which prevent the stimulation of the adrenergic receptors responsible for increased cardiac action. They are often used to control heart rhythm, treat angina, and reduce high blood pressure. For CT Coronary Angiogram, beta blockers will help to slow the heart rate down so it is easier for the CT scanner to take pictures when the heart is still.



The doses that are used for CT Coronary Angiogram at North Shore Radiology range from 25mg to 150 mg and will usually work in 30-60 mins after oral administration. The Half-life of a beta blocker is approximately 4hrs. With any prescribed medication, there may be some potential side effects. These side effects may include bradycardia (low heart rate), hypotension (low blood pressure) and bronchospasm in patients with very brittle airways disease.

There are some known contraindications to these Beta Blocker medications. These include:

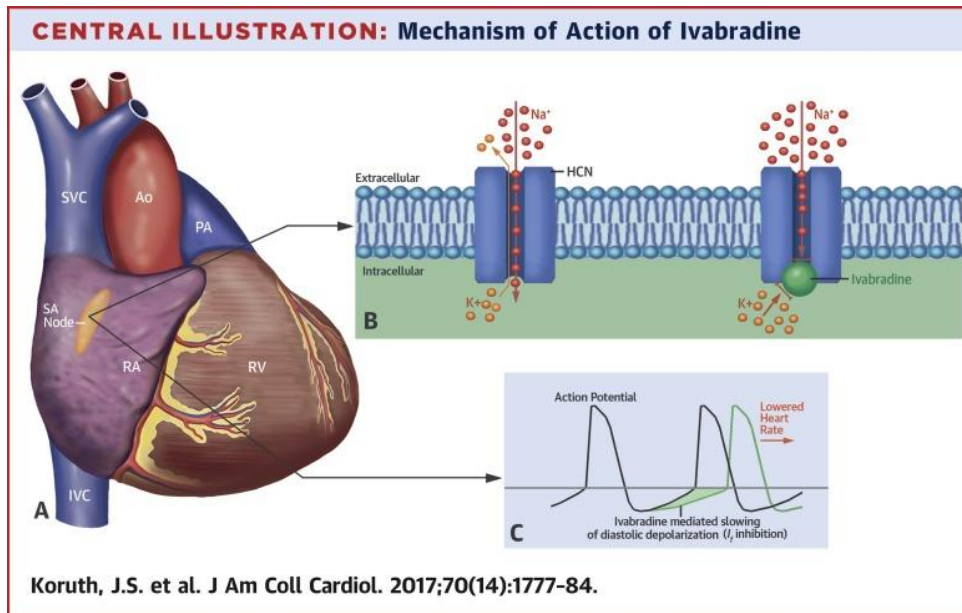
- ▶ Resting HR < 50
- ▶ Systolic BP < 90
- ▶ Current exacerbation of or poorly controlled asthma/COPD
- ▶ Concurrent verapamil/diltiazem → risk of heart block

Our team will always check your heart rate, blood pressure and go through a brief medical history before any medication is prescribed. If you have a list of medications, please provide it to one of our nursing or technical staff. If you have any concerns regarding the contraindications listed, notify one of our staff.

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## What is Ivabradine?

Most patients will receive beta-blockers to slow their heart rate for CTCA. However, patients who are asthmatic, have COPD, have low blood pressure or take verapamil/diltiazem may be given Ivabradine. This drug is in a class of medications called (HCN) channel blockers. Unlike beta-blockers, this medication slows the heart rate with minimal changes in blood pressure and has less risk of causing breathing problems for patients with very brittle airways.



The doses prescribed for CT Coronary Angiogram range from 5 mg to 15 mg and generally should see effect by 1hr post administration. The drug has a Half-life of approximately 6 hours. With any prescribed medication, there may be some side effects that can include bradycardia (low heart rate) and potentially provoked Atrial Fibrillation.

## Glyceryl Trinitrate – GTN (Nitrolingual Spray)

Just before the CT Coronary Angiogram, patients will receive one spray of GTN (Glyceryl Trinitrate) under the tongue. GTN is a nitric oxide donor which leads to smooth muscle dilatation. Smooth muscle is found in the arteriole walls. Sublingual GTN administration results in significant coronary artery dilatation which in turn increases the number of evaluable coronary branches. Image quality is improved the most in smaller coronary branches and therefore the diagnostic accuracy of CT coronary angiography increases.

Some of the side effects of this medication can include mild to moderate headaches as well as hypotension. Some of the contraindications to this medication are:

- ▶ Systolic BP < 90 (SBP < 100 with known heart failure)
- ▶ Severe aortic stenosis
- ▶ Concurrent PDE-5 (sildenafil, tadalafil ie Viagra, Cialis, Levitra taken within the last 48 hours)

Please let our team know if you have any concerns regarding the contraindications listed.

## Post Procedure

It is unusual to have significant side effects from the medication used to slow your heart rate (Metoprolol or Ivabradine). If you are given beta blockers for the examination, it may make you feel lightheaded and faint. After the examination, you will be kept under observation for a short amount of time. Occasionally, the Nitrolingual spray (Glyceryl Trinitrate) can cause a drop in blood pressure or a mild headache. You may eat and drink normally post procedure. The effects of beta blockers should wear off after a few hours.

Very infrequently, the procedure may be unsuccessful due to heart rate fluctuations and may need to be repeated which will often be done on the day after Radiologist review.