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Heart to Heart Talk

with Philip S. Chua, M.D.

Coronary Angiogram

What is a Coronary Angiogram?

Coronary Angiogram, also known as Cardiac Catheterization, is a medical test where radio-opaque dye is injected into the Coronary Arteries of the heart to find out if there are any blockages in these arteries which might lead to a heart attack.

How is it performed?

The cardiologist injects an (anesthetic agent) numbing medication into an area of the skin in the groin of the patient, who has been given sedative beforehand, and makes a 2 mm hole in the skin. Through this tiny opening, a catheter (size of a strand of spaghetti) is inserted into the femoral (groin) artery and under X-Ray fluoroscopic guidance, advance this catheter to the base of the ascending aorta (large major artery connected to the heart). The two main coronary arteries (left and right) branch out from the base of the aorta to supply blood (carrying oxygen and nutrition) to the muscles of the heart. Once the tip of the catheter catches or hugs the opening of the left and right coronary arteries, dye is injected into the catheter into these arteries, and video film of the dye flowing into the coronary arteries are taken. If there are any blockages, they will be captured on film.

How painful is the test?

Not very. The patient feels a tiny needle stick when the anesthetic drug is injected into the skin in the groin. Thereafter, there is no pain, just a mild discomfort in the groin as the cardiologist manipulates the catheter. When the dye is injected into the coronary arteries in the actual testing procedure, the patient feels a very warm sensation in the chest and then face and head, then the abdomen. But the sensation clears out fast, in a few seconds, and not really that bothersome.

Why is this test important?

Cardiac Cath, as the procedure is popularly nicknamed, is what could be regarded as the “supreme court” of all heart tests. While EKG (electrocardiogram) and Stress EKG (treadmill test), or even ECHO (echocardiogram) are studies used to detect the presence of coronary artery disease, these tests are non-invasive procedures utilized as preliminary or screening diagnostic methods. If they show normal results, then chances are there are no blockages in the coronary arteries. If the results are doubtful or positive, then cardiac cath is performed to make the final determination. Following cardiac cath, the physician can say with practically 100% certainty if the patient has coronary blockages or not. Hence, it is considered the “supreme court” or “court of final resort” of cardiac diagnostic tests.

What are the possible complications of this test?

Allergy to the dye injected is one possible complication. An antihistaminic and steroid injection is used to counteract this allergy. During the actual catheterization, there could be temporary heart irritation from the catheter in the aorta or in the heart, causing minor heart beat irregularity or slowing of the heart rate. A tiny air bubble or tiny clot could travel to other organs or to the leg, but this is very rare and more of an exception. After the procedure, and the catheter is removed from the puncture site at the groin, there could be bleeding. Usually, the oozing is very mild, and pressure applied to the area stops the bleeding. Cardiac cath is a widely used procedure all over the world and a very safe test.

Is this procedure available in Cebu?

Yes, this test is available in Cebu, and performed by especially trained heart specialists called Interventional Cardiologists.

Has there been any death reported from the procedure?

Just like many invasive medical tests, cardiac cath has attendant risk, but the risk of dying from cardiac cath is much much less compared to, say accidental death from a car accident on a busy highway. The risk of NOT having the test at all and leaving the heart condition undiagnosed has a higher risk than undergoing cardiac cath. In one study, it was shown that in 5000 consecutive cardiac caths, there was no mortality at all. Indeed, cardiac cath is one of the safest tests, and a most valuable and life-saving one.

Can heart bypass or valve surgery be done without cardiac cath?

In majority of the cases, no. The heart surgeon needs the vital anatomic and physiologic information from the cardiac cath in making his decision and recommendation to the patient. This findings on the video film provides a dynamic “road map” for the cardiac surgeon during surgery.

How vital is this test?

Prior to the introduction of cardiac cath in 1958, people developed coronary artery disease, undiagnosed, and died of heart attack without much hope. It was only after this test became popular that heart bypass machine and heart bypass procedure came about, one rapidly following the other in historical development. And these three technologies prospered and exploded, hand in hand, to their present state-of-the-art popularity and service to humanity.

Can the test be done more than once?

Where medically needed, cardiac cath may be done as often as possible, even after a day or two. However, the procedure is done just once, unless there is an additional or new medical problem that arises, where a repeat cardiac cath may be done.

Should cardiac cath be done as preventive measure?

Not as a rule. If there are no symptoms, and the patient is healthy and active, we do not recommend cardiac cath just to satisfy our or the patient’s curiosity. Besides being expensive, the test has possible risk and complications (although mild and rare) as described earlier. One exception is for big corporation executive check-ups and for airline pilots, where some companies require initial employment cardiac cath. The other exception, which is more medically indicated, is where there is a strong family history of a genetic predisposition to asymptomatic (no symptoms) left main coronary artery blockages.

Our readers are invited to send in their medical questions for possible inclusion in future issues of this column. Mail your questions to the author at Heart to Heart Talk, c/o Cebu Cardiovascular Center, Cebu Doctors’ Hospital, Osmena Boulevard, Cebu City, Philippines, or e-mail them to heart@chua.net

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