

# **CARDIAC CATHETERIZATION AND INTERVENTION AT SGNHC**

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As performed today, cardiac catheterization is a combination of hemodynamic and angiographic procedure undertaken for diagnostic and / or therapeutic purposes. The decision to perform cardiac catheterization must be based on a careful balance of risk of procedure against the anticipated benefit to the patient. It is usually recommended to confirm the presence of a clinically suspected condition, define its anatomic and physiologic severity and determine the presence or absence of associated condition. Cardiac catheterization may yield information that will be crucial in defining the need for coronary angioplasty, cardiac surgery, or other therapeutic interventions as well as the timing, risk, and anticipated benefit in a given patient. The commonest indication for cardiac catheterization today arises in the patient with an acute coronary syndrome in whom an invasive therapeutic intervention (PTCA with stenting), coronary artery bypass surgery is contemplated.

## **Coronary Angiography (CAG)**

CAG is the commonest procedure performed in cardiac catheterization laboratory. It is the diagnostic procedure, identifies the involved artery or arteries and associated other diseases, which provide critical information for the decision to proceed with open heart surgery.

## **Right Heart Catheterization**

This study is necessary before the cardiac surgery for the certain (not all) congenital heart disease which provide the homodynamic data concerning pulmonary hypertension. Associated angiocardiology provide anatomical information and associated lesion in complex congenital disease. Although clinical and non-invasive evaluation provides adequate data for clinical decision making, there will be about 15-20% error rate in selecting appropriate management without catheterization. In this regard the risk of catheterization are small compared to those of embarking upon cardiac surgery on a patient for whom an incorrect clinical diagnosis or the presence of an unsuspected additional condition greatly prolongs and complicate the planned surgical approach. The operating room is not a good place for surprises. By providing the surgical team with a precise and complete road map of the course ahead, cardiac catheterization can permit carefully reasoned and maximally efficient operative procedures. So it is better to have cardiac catheterization in nearly all patient for whom cardiac surgery is contemplated

## **Aortogram and peripheral angiogram**

These procedures provide the information about the site, severity, and extent of obstruction or narrowing in aorta and its major branches and other peripheral vessels. Takayasu's disease, coarctation of aorta, renal artery stenosis, carotid artery stenosis, aorto-iliac diseases, arteritis etc can be diagnosed as well as severity and extent assessed by these procedures. IVC- gram and portocavo- grams are other examples.

## Interventions

### PTCA with Stenting

Until 1977, coronary artery bypass surgery was the only alternative to medicine for the treatment of coronary artery disease. PTCA with stenting provides an alternative procedure in which the narrowed portion of the artery can be dilated selectively and stent can be placed safely without surgery via a small skin puncture.

### Valvuloplasty

These techniques as alternatives to surgery for the treatment of valvular and congenital heart disease were introduced in early 1980s. In the pediatric population, balloon valvuloplasty (opening of narrow valve) is frequently used to relieve selected congenital valvular disorders, including pulmonic and aortic stenosis. In adult, balloon mitral valvuloplasty for mitral stenosis has emerged as an excellent alternative to surgery in selected patient.

### Electrophysiologic Studies (EPS) and Ablation

EPS is an invasive procedure that involves the placement of multipolar catheter electrodes in various intracardiac sites. The general purposes of EPS are to characterize the electrophysiological properties of conduction system, induce and analyze the mechanism of arrhythmias and evaluate the effect of therapeutic intervention. This is routinely utilized in the management of patient with supraventricular and ventricular arrhythmias. With the development of safe and effective catheter ablation techniques an exciting new era of electrophysiology has evolved.

### Permanent Pacing

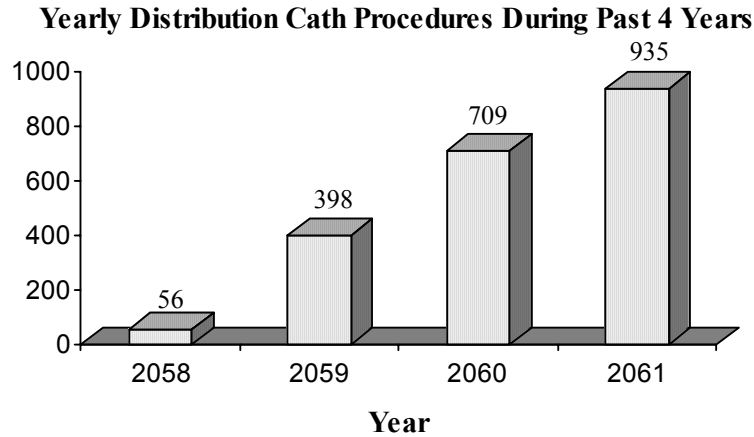
Permanent pacemaker implantation is one of the most rapidly advancing subspecialties in cardiology. Pacemakers stimulate the heart by generating square wave electrical impulses which activate conducting tissue and useful mainly in symptomatic bradycardias.

### Cardiac catheterization at SGNHC

History of cardiac catheterization at SGNHC is short. It was started on the latter part of 058 B.S. with the help of expert from India and Australia. Soon after, it started functioning by its own physicians. Data of Cath-lab procedure (performed in SGNHC) is given below.

Procedure	058	059	060	061(Poush)	Total	%
Coronary angiography	32	181	346	416	975	49.8
Right heart catheterization	22	51	61	105	239	12.3
Aortogram	-	58	17	12	87	4.2
Peripheral angiogram	-	9	41	69	110	5.6
PTCA with stenting	-	-	15	41	55	2.0
Balloon mitral valvuloplasty	2	43	89	105	238	12.1
Balloon pulmonary valvuloplasty	-	-	-	08	08	0.4
Permanent Pacemaker Implantation	-	26	54	75	155	8.0
EPS	-	-	22	14	36	1.8
Others (TPI, ASD closure etc)	-	30	64	90	184	8.0
<b>Total</b>	<b>56</b>	<b>398</b>	<b>709</b>	<b>935</b>	<b>2087</b>	<b>100.00%</b>

This table showed the increased number of procedures per year at SGNHC. EPS programme was helped by experts from India. Experts from India, Australia, and Norway helped us in various aspects of catheterization. Ignorance and socio-economic conditions are still the major problem. Further training programmes are necessary in certain areas.



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Patient: How much to have this tooth pulled? Dentist: \$90.00. Patient: \$90.00 for just a few minutes work???

Dentist begging the patient: Could you help me? Could you give out a few of your loudest, most painful screams?

Patient: Why? Doc, it isn't all that bad this time. Dentist: There are so many people in the waiting room right now and I don't want to miss the 4 o'clock cricket game.

A friend of mine went to the dentist recently. He commented that it must be tough spending all day with your hands in someone's mouth. He said, "I just think of it as having my hands in their wallet."