

Outcome of Different Invasive Procedures in the Department of Cardiology, Dinajpur Medical College Hospital

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Recently, the Cardiologists of Dinajpur Medical College started activities in a highly equipped Cardiology Department in April 2011. Since then we are serving the people of this region in a standard coronary care unit as well as performing various cardiac invasive procedures to provide optimum benefit of modern cardiology to our patients. Here we summarize and analyze our invasive activities and compare it to standard. A total of 80 different invasive procedures were performed at our centre over last 9 months. The procedures include coronary angiography (55 cases), coronary angioplasty with stenting (2 cases), temporary pacemaker implantation (17 cases) and permanent pacemaker implantation (6 cases). Success rate was 100% with minimum complications comparable to international standard.

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Introduction

Now-a-days science related to cardiology has advanced to such an extent that we can deal with most of the diseases of cardiovascular system to greatly reduce morbidity and mortality. Various invasive procedures and interventions are exercised to achieve the goal of treatment. Department of Cardiology of Dinajpur Medical College Hospital (DJMCH) has a coronary care unit, non invasive imaging facility (Echocardiography) and a well equipped catheterization laboratory along with other support systems. Since opening of the Department of Cardiology at DJMCH on 29th March 2011, we have performed a total of 79 different invasive procedures and interventions in our center. At the end of the year 2011, we analyze and present all these activities in this article.

Methods

All the invasive procedures were done over

last nine months since inception of Cardiac Cath Lab. activities on 19th April, 2011,

Coronary Angiography (CAG)

Patients of ischaemic heart diseases were evaluated clinically and by echocardiography. Those who were clinically stable but experienced episodes of angina and who had left ventricular ejection fraction above 35% were selected for evaluation of coronary anatomy by coronary angiography. A total of 55 patients underwent the procedure. The procedure was performed through right femoral arterial approach under local anaesthesia. 2500 IU unfractionated heparin was injected through vascular access sheath. Right and left Judkins Catheters (6F) were used to perform right and left coronary artery angiography. Pigtail catheter was sometimes used to perform renal angiography. After completion of the procedure vascular access sheath was withdrawn and haemostasis achieved.

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Temporary pacemaker (TPM) implantation

Admitted patients having severe symptomatic bradycardia (total 17 patients) underwent TPM implantation through right femoral venous approach under local anaesthetic and TPM lead was placed at RV apex.

Permanently pacemaker (PPM) implantation

A total of 6 patients were treated by PPM. It was implanted under local anaesthesia in the chest below clavicle beneath skin and soft tissue; PPM lead was placed at RV apex.

Angioplasty with stenting (PCI)

The procedure was same as for CAG except for a coronary guide wire was passed through guide catheters to distal part of the diseased coronary artery over which the balloon and stents are deployed at the lesion to revascularise.

Results

Table I shows outcome of patients who were underwent coronary angiography. A total of 55 patients were selected for the purpose and the procedure was successfully performed in all the cases. Out of 55 patients only 1 developed ventricular tachycardia at the end of the procedure which was successfully converted to sinus rhythm by DC shock and subsequently he was kept on lignocaine drip. Another patient developed mild haematoma observed next the day after CAG and it resolved spontaneous over several days. Table II shows that out of 17 patients treated with TPM implantation none experienced any TPM related complications like haematoma, RV infarction, arteriovenous fistula etc.

Table III shows that PPM was implanted in 6 patients at our centre till to date. Four of them had CHB and two had sick sinus syndrome. None of our patients experienced such complications and subsequent follow up revealed no lead or generator related complications.

Table IV shows the outcome of patients underwent PCI in our centre. Only 2 patients out of 55 CAG cases agreed to have PCI as coronary revascularization procedure. Successful stenting were done in both the cases without any complication. Figure 1 and figure 2 show effect of PCI in one of our patients at our centre; 90-95% stenosis is clearly visible at proximal part of left circumflex artery (fig. 1) which is revascularised after successful deployment of a stent across the stenosed segment (fig. 2).

Discussion

Coronary arteriography remains the gold standard for identifying the presence or absence of arterial narrowing related to atherosclerotic coronary artery disease (CAD).¹ It can establish the presence or absence of coronary stenoses, defines therapeutic options, and determines the prognosis of patients with symptoms or signs of ischemic CAD.² Various complications of CAG include death, MI, cerebral embolism, arterial dissection, arrhythmia (VT, VF), haematoma, A-V fistula and dye hypersensitivity reactions. Complication rates of our patients are similar to the international standard.³

Implantable device for the management of cardiac arrhythmias have evolved rapidly since the inception of cardiac pacing in the late 1950. Various forms of pacemakers (VVI, VVIR, DDR, AAIR etc) are used to treat various forms of Brady arrhythmias. Acquired symptomatic 3rd degree A-V block and symptomatic bradycardia in sick sinus syndrome are two important indications for PPM implantation.⁴ Major implant related complications are pneumothorax, inadvertent arterial puncture, air embolism, arteriovenous fistula, subcutaneous emphysema and brachial plexus injury.

Table I: Outcome of patients underwent coronary angiography

Total number of Patient	Indication	Success rate no (%)	Complication	Number (%)
55 Male: 42 Female: 13	Angina in different forms of IHD (stable angina, STEMI, NSTEMI after stabilization)	55(100%)	1. Death 2. MI 3. Cerebral embolism 4. Arterial dissection 5. Arrhythmia (VT, VF) 6. Haematoma 7. A-V fistula 8. Dye hypersensitivity	00(0%) 00(0%) 00(0%) 00(0%) 01(1.8%) 01(1.8%) 00(0%) 00(0%)

Table II: Outcome of patients underwent temporary pacemaker implantation

Total number of patient	Indication	Success rate N (%)	Complication N (%)
17 Male: 12 Female: 05	Severe symptomatic bradycardia (in complete AV block, Sick Sinus Syndrome, MI, etc.)	17(100%)	1. Haematoma 2. Arterial injury 3. Arrhythmia (VT, VF) 4. RV perforation 5. A-V fistula 6. Infection

Table III: Outcome of patients underwent permanent pacemaker implantation

Total number of patient	Indication	Success rate N (%)	Complications	N (%)
06 Male:03 Female:03	Severe symptomatic bradycardia in: <ul style="list-style-type: none"> • Complete AV block-4 • Sick Sinus Syndrome-2 	06(100%)	1. Pneumothorax 2. Arterial injury 3. Air embolism 4. A-V fistula 5. Subcutaneous emphysema 6. Brachial plexus injury	00(0%) 00(0%) 00(0%) 00(0%) 00(0%) 00(0%)

Table IV: Outcome of Patients underwent coronary stenting (PCI)

Total number of patient	Indication	Success rate	Complication
02 Male:01 Female:01	Angina(previous H/O Unstable angina)	02(100%)	1. Death 2. MI 3. Cerebral embolism 4. Arterial dissection 5. Arrhythmia (VT, VF) 6. Haematoma 7. A-V fistula 8. Dye hypersensitivity reactions

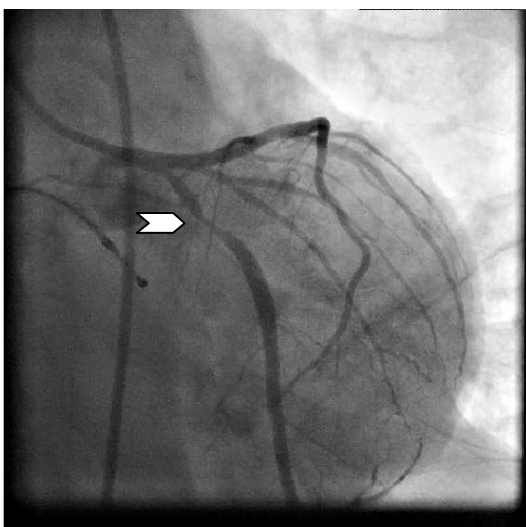


Figure 1. Before stenting

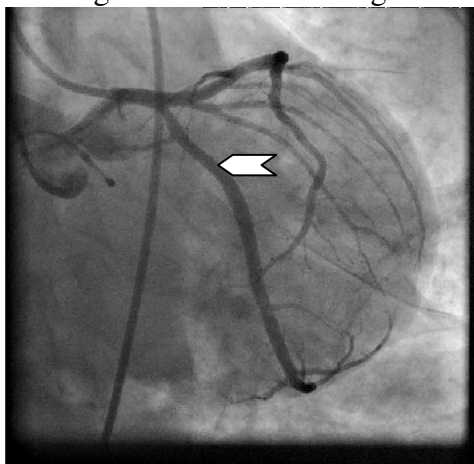


Figure 2. After stenting

PCI to treat coronary artery disease (CAD) has expanded dramatically over the past two decades. Continual technological improvement (e.g.- drug eluting stents), refinements in periprocedural adjunctive pharmacology (e.g-GPIIb/IIIa inhibitor) and a better understanding of early and late outcome have led PCI as definitive therapy for many patients with ischaemia producing CAD. Angiographic success after PCI is defined as the attainment of residual diameter stenosis less than 50 percent and normal TIMI 3 flow. Procedural success is defined as angiographic success without the occurrence of major complications (death, MI or CABG) within 30 days of the procedure.⁵

Conclusion

In a peripheral centre like ours, with great limitations, we have done a fair number of different procedures successfully over last nine months. Complication rates of the procedures were minimal and comparable to the international standard. But yet lot of things to be done. We have to increase the number as well as to perform rest of the cardiac invasive procedures, yet not done, in this centre to provide high quality service to the population of this region at minimum cost compared to other centers.

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