Editorial

Primary PCI (Percutaneous Coronary Intervention), is the best treatment after Myocardial Infraction (MI)

Dear Sir,

In terms of cardiology, PCI (Percutaneous Coronary Intervention) depicts angiogram and stenting of cardiac patient. Primary PCI that indicates immediate angiogram and stenting in Myocardial Infraction (MI) setting (STEMI) as recommended in the Guidelines like ACC/AHA (American College of Cardiology/American Heart Association), and by the ESC (European Society of Cardiology) as Class-IA indication.

Further,

- Class-I recommendation means this treatment/ procedure should be given to the patient & its benefit is >>> risk.
- Label of evidence A means result of this treatment is proven by multiple randomized clinical trial & meta-analysis.
- Primary PCI should be performed in patients with STEMI if ischemic symptoms less than 12 hours' duration.[1] (ACC Class IA)
- A routine Primary PCI strategy should be considered in a patient presenting late (12-48 hours) after symptom onset. [2] (ESC Class IIa).

It has been seen that only medical management by antiplatelet, thrombolytics & heparin in delayed PCI (stenting) in STEMI patients results in higher mortality. These patients ultimately developed Heart Failure with reduced ejection fraction after MI as there is irreversible myocardial damage. Despite improvements in therapy, the mortality rate in patients with HF has remained unacceptably high. Congestive heart failure remains highly lethal, with a median survival time of 1.7 years in men and 3.2 years in women and a 5-year survival rate of 25% in men and 38% in women[3].

Moreover, heart failure patients need repeated hospitalization with Acute Left Ventricular Failure (ALVF) & increasing number of medications increase economic burden. Most common cause of death in heart failure are ALVF, recurrent RTI, Arrhythmias, Electrolyte imbalance etc. To prevent or minimize myocardial necrosis the only way is early revascularization (reestablished coronary blood flow) that is Primary PCI. To save me myocardium, to save lives, to reduce mortality & sufferings of STEMI patients, to reduce economic burden, Primary PCI should be done 24/7 where it is possible. Primary PCI is beneficial for patients, is an established treatment worldwide and recommended (Class-IA) by ACC/AHA/ESC as well as other international guidelines.

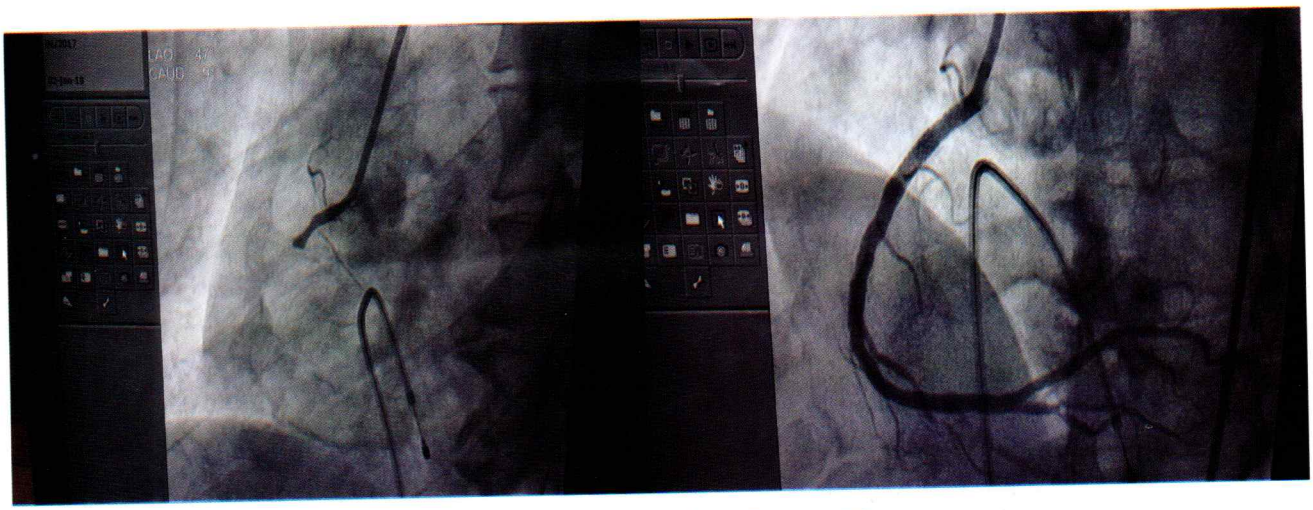
Here is an example of a 53 years male presented with STEMI inferior with two hours chest pain with complete heart block with cardiogenic shock at 3 am at night & we did primary PCI within 70 min successfully with TPM & Inotropes support.

In this critical situation, femoral route is better than radial route. But for stable MI patient we prefer radial route.

Radial access is recommended over femoral access if performed by an experienced radial operator[4] (ESC class IA)

Thrombolysis by fibrinolytics is not the definitive treatment at present. It is only part of definitive treatment where Cathlab & Primary PCI team is not available both in rural & urban area. Patient should be transferred immediately after thrombolysis to a PCI

Asso. Prof. Salim Mahmod
Head of the Department of Cardiology
Ad-din Women Medical College & hospital
salimmahmod75@ gmail.com
Received Date : 15 September, 2020
Accepted Date : 06 December, 2020



Before Primary PCI

After Primary PCI

Fig.-1: Result of primary PCI

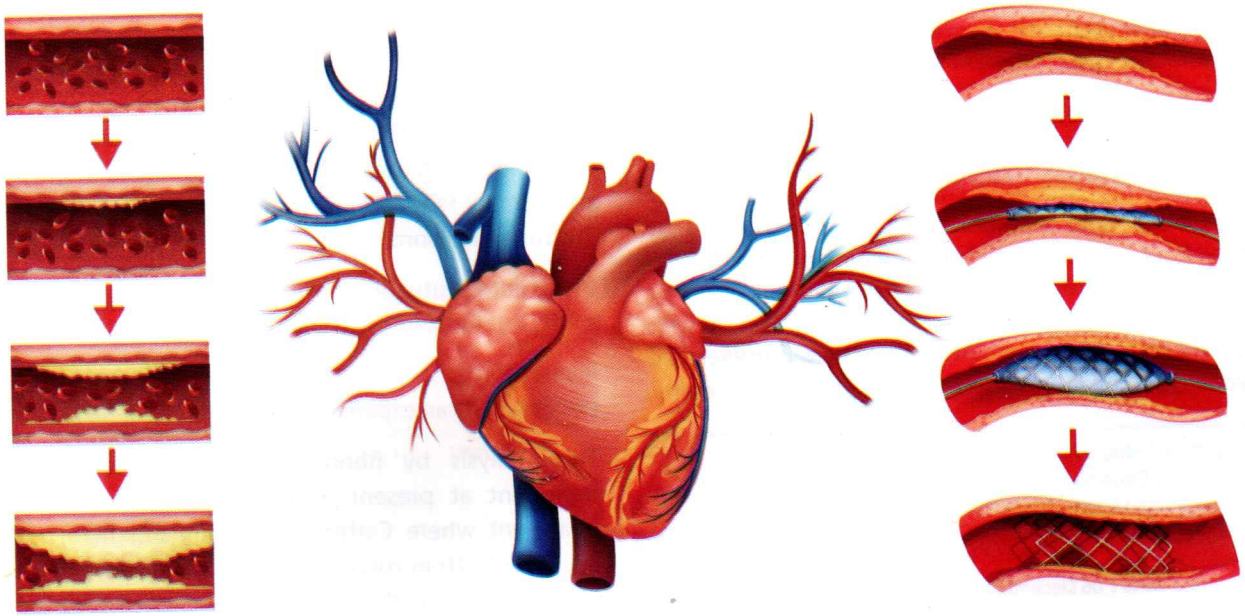
capable hospital for Pharmaco-invasive PCI within 24 hours. Pharmaco-invasive PCI means thrombolysis given in one hospital then the patient transferred for angiogram & stenting to a PCI capable Hospital.

Transfer to PCI capable center following fibrinolysis is indicated in all patients immediately after fibrinolysis. [5] (ESC Class-IA)

For thrombolytic treatment developed world uses Tenecteplase but we use streptokinase.

Efficacy, that is vessel patency rate after Tenecteplase is 90% to 95% meaning thrombus will dissolve & reestablish blood flow to MI affected area of Myocardium in 95 patients out of 100 patients. Comparing with this vessel patency rate of Streptokinase is only 60 to70 % effective, means thrombus will remain as it is in 30 to 40% patient & myocardium of that supplied territory will completely damage with time. Due to affordable pricing like 5,000 Tk. for Streptokinase comparing 50,000Tk for Tenecteplase, we use Streptokinase. Previously Tenecteplase was not available in our country. Now it is marketed by two renewed pharmaceutical companie Radiant & Healthcare as Metalyse & Tplase, which mode it readily available.

Angioplasty for coronary artery disease



In case of thrombolytic treatment, only thrombus will dissolve partially or fully but the main disease that is ulcerated atheromatous plaque or block remain as it is which may cause further heart attack. Also myocardium of that supplied territory become weak as it will get less nutrition & oxygen.

It was thought earlier in a critical patient like Cardiogenic Shock & acute severe Heart Failure patient should be treated conservatively in CCU, which was proved completely wrong by trials & guidelines. These patients need more urgent angiogram & angioplasty to improve mortality & morbidity.

Primary PCI should be performed in patients with STEMI and cardiogenic shock or acute severe HF, irrespective of time delay from MI onset .[6](Class IA)

In our country only few corporate cardiac centers are doing 24/7 hours primary PCI. Other hospitals cannot give this treatment because of three main reasons, one is our patients are mostly poor they can't afford to buy this treatment. Another reason is lack of well trained committed PPCI team. Finally, this message about latest treatment & update about MI treatment is mostly not informed to health professionals. To overcome these obstacle we need to develop good Insurance policy, we need more and more skilled primary PCI team throughout the country, and need more Cath lab center.

Conclusion:

Primary PCI is the best treatment in MI(STEMI) but it should be done by well trained, skilled Primary PCI team. Operator should be capable enough to manage any complications instantly with good support system & setup in cathlab & CCU. Procedure should be completed as fast as possible to spend minimum time in cathlab. Counseling to patient party with written consent should be taken before procedure. DC machine and bed side echocardiography unit Intubation set & TPM should be double checked before primary PCI.

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