

## INTRODUCTION

Stable ischemic heart disease (SIHD), stable coronary artery disease and stable angina are loosely and interchangeably terms used in the common day to day clinical practice. While stable angina is the symptomatic form of SIHD, stable coronary artery disease could be present in the asymptomatic form as well symptomatic form.

To look from the patho physiological angle SIHD is said to be present when atheromatous plaques could be documented either by the known imaging modalities like coronary angiography, IVUS or CT coronary angiography or physiologic testing viz. stress test or myocardial perfusion scanning. The disease becomes symptomatic when more than 50% luminal diameter is compromised by the plaque.

With the progression of disease a phenomenon of remodeling described by Glagov could maintain the luminal diameter that is adequate to maintain the blood flow. That would explain to a large extent asymptomatic form of the disease. There are other factors like recruitment of the collaterals and ischemic preconditioning that could keep the patient asymptomatic despite severe degree of block.. As long as the disease process remains stable, the patient could be minimally symptomatic or experience stable or predictable form of angina on effort.

The progression or conversion of the disease to unstable form that could lead to acute coronary syndrome (ACS) or myocardial infarction (MI) is determined by the volume of the lipid score, thickness of the fibrous cap over the plaque and the infiltration of the fibrous cap with microphages and release of matrix metalloproteinases. Such an inflammatory process leads to plaque rupture and acute occlusion of the vessel. Once the inflammation is controlled by appropriate treatment or natural healing over period of weeks or months, the disease can reassume stable form.

Thus atherosclerotic disease is dynamic in nature that swings from asymptomatic to stable angina to ACS, MI, and if the patient survives, the disease process can get back into the stable form through the healing process.

## Diagnostic testing

While the diagnosis of stable angina is basically arrived at by careful history and presence of the risk factors as per the Framingham risk score charts, the definite diagnosis could be established by either stress testing,

myocardial perfusion scanning with thallium, sestamibi or dobutamine stress echo. Invasive testing with coronary angiography is not recommended for all individuals with suspected SIHD. However, AHA/ACC guidelines recommend coronary angiography for patients with presumed SIHD who have unacceptable ischemic symptoms despite being on guidelines recommended optimum treatment. It also gives Class IIa indication for those in whom non-invasive testing indicates high probability of severe coronary artery disease or those who cannot undergo diagnostic stress testing.<sup>1</sup>

In the STAR registry from India, Pahlajani et al<sup>2</sup> studied the practice pattern in the private clinics in the management of patients with stable angina. Study enrolled 2079 patients with class I and II (NYHA) angina. They found that diagnostic testing rates were low. Only 12% were underwent stress testing, while 8% had CT or conventional coronary angiography. Practitioners relied heavily on their clinical skills.

## MEDICAL TREATMENT

While medical treatment with aspirin, statins, beta blockers and ivabradine has been useful in controlling symptoms and preventing the conversion to ACS, several treatments like chelation therapy has been touted as non-invasive means to treat atherosclerotic vessels. The treatment consists of infusion of disodium ethylenediaminetetraacetic acid (EDTA) along with some other substances. A randomized control trial (RCT) examined the value of chelation therapy in 84 patients with stable angina and positive stress test. Patients on therapy received chelation therapy for 3 hours twice weekly for 15 weeks. There was no difference in the ischemia reduction or improvement in exercise tolerance and quality of life score between the patients allocated to treatment versus those on placebo. National Centre of complimentary and alternate medicine and the National Heart Lung and Blood institution conducted RCT which compared chelation with placebo. The primary composite end point consisted of total mortality, recurrent MI, stroke, coronary revascularization or history of angina. There was no individual end points difference between the groups. The investigators did not recommend routine use of chelation therapy despite some over all modest benefit in diabetic patients. The EDTA therapy is not without side effects and when infused rapidly can cause hypocalcemia, death or stroke.<sup>3,4</sup>

Recently results of MASS II, BARI 2D and COURAGE<sup>5-7</sup> have been published. These randomized control trials were performed to assess the choice of revascularization strategy and value of medical treatment in patients with SIHD. MASS II trial, enrolled and randomized 611 patients to medical treatment, CABG or PCI. At 10 year follow up investigators found no difference in mortality between 3 modalities of treatment. However, there was a trend towards the reduction in the Q wave MI and revascularization in the CABG patients. Trial also showed higher rate of MI in medically treated patients as compared to PCI and CABG.

In BARI 2D trial 2368 patients were enrolled. These patients had SIHD with Type 2 diabetes mellitus and concluded that medical treatment is as effective as the revascularization by PCI as well as by CABG. However, the freedom from revascularization was higher in patients who underwent PCI or CABG. In STAR registry most of the patients despite not having undergone additional invasive testing received guideline recommended treatment like statins, beta blockers, nitrates and antiplatelets.

In the COURAGE trial optimal medical treatment (OMT) was compared to PCI with OMT. The investigators randomized 1149 patients to PCI followed by OMT and 1138 patients received OMT. The cardiac death rate was 3.8% in the PCI with OMT arm and 3.9% in OMT arm. Cardiac death, MI and stroke was also similar in both the groups. Thus COURAGE trial concluded that PCI with OMT did not provide additional benefit to patients with SIHD as compared to those treated only with OMT. Following the publication of COURAGE trial there was a significant drop in the number of patients who underwent PCI for SIHD.<sup>8</sup>

Thus most of the patients with SIHD can be managed with optimum medical treatment. PCI or CABG should be reserve for patients who a) have uncontrolled symptoms despite being on medical treatment b) severe angina of class III or IV c) large area of myocardium at jeopardy d) left main coronary artery obstruction or proximal LAD lesion e) patients with MVD and LV dysfunction.

## REFERENCES

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