STENT IN ACUTE NON-Q WAVE MYOCARDIAL INFARCTION

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MJAfi 2001; 57 : 254-255

KEY WORDS : Myocardial infarction (MI).

Introduction

Thrombolytic therapy has revolutionised management of myocardial infarction and has reduced morbidity and mortality. However, certain deficiencies exist in this mode of therapy. There is no definite marker for assessing reperfusion and there is recurrent ischemia in 15-30% of cases and intracranial bleed occur in 0.5-1.5% of cases [1]. Besides this thrombolytic therapy offers no benefit in unstable angina and non-Q wave MI [2]. Thus angioplasty has become an important mode of management of unstable ischemic syndrome. Here we present a case of non Q-wave MI, who was managed with intracoronary stent implantation.

Case Report

This 51 year old patient was admitted to hospital with history of typical anginal pain lasting for more than 30 minutes associated with profuse sweating and breathlessness. There was no past history of hypertension, diabetes, smoking, hyperlipidaemia, or family history of ischemic heart disease. On examination the patient was of average built without cyanosis, edema, xanthoma, xanthelasma. Pulse 58/minute was regular, all peripheral pulses were felt. Blood pressure was 130/80 mmHg. Jugular venous pressure was not raised and pulsation was normal. Examination of cardiovascular system revealed normal first and second heart sound, and left ventricular fourth heart sound was present. There were no basal crackles. Other systems were essentially normal.

Investigation showed haemoglobin 14 gm/dl. Total and differential leucocyte counts were normal. Plasma glucose fasting was 80 mg/dl, postprandial 110 mg/dl, blood urea 25 mg/dl, serum creatinine 0.8 mg/dl, serum uric acid 4.0 mg/dl, serum cholesterol 198 mg/dl, serum triglyceride 100 mg/dl, serum HDL 42 mg/dl, creatinine kinase-MB 200 IU/L. Urine examination was normal. Electrocardiogram (ECG) showed T-wave inversion in chest lead V1-V5. Skiagram chest was normal. Echocardiography showed regional wall motion abnormality in anterior and apical segment, and left ventricular ejection fraction was 50%.

He was diagnosed to have non-Q anterior wall MI. He was given one tablet of aspirin to chew and started on intravenous infusion of heparin 1000 units/hour and nitroglycerine at the rate of 10µg/min. Thrombolytic therapy was not given in view of non-

Q wave MI. He had responded initially but had recurrence of anginal pain next morning without fresh changes in ECG. Nitroglycerine was stepped up and tab Diltiazem CD was added in the dose of 90-mg OD. In view of non-Q MI and unstable condition, angiography was planned next day and tab Ticlopidine 250 mg twice a day was added to the regime in addition to aspirin.

Patient was taken up for coronary angiography on the third day. Using 7F Judkin's diagnostic catheter, angiogram was done which showed normal left main coronary artery, left anterior descending artery showed 90% proximal discrete stenosis. Left circumflex, right coronary and their branches were normal (Fig-1). In view of the single vessel discrete stenosis, it was decided to go ahead with angioplasty with de novo stenting. The diagnostic catheter was changed to Q - curved guiding catheter. Heparin 10,000 unit was given as intravenous bolus. Using extra support 0.014 inch guiding wire the lesion was crossed. After predilatation of the lesion with 3x20 mm balloon, a 16x3.5mm 'NIR stent' using NIR primo system was deployed at high pressure inflation. Post stent angiogram showed TIMI3 flow with no residual lesion (Fig-2). The patient was subsequently continued on Disprin, Ticlopidine and calcium channel blockers. His subsequent ECG showed reversion of T-wave changes.

Discussion

A diagnosis of non-Q MI was made on the basis of clinical symptoms, T-wave changes in resting ECG and elevated creatine kinase-MB isoenzyme. Thrombolytic therapy was not given to patient as ECG inclusion criteria for most clinical trial of thrombolytic therapy have included only patients with ST elevation on the index ECG [3]. GISSI - 1 trial found no significant effect of thrombolysis in patients with non-Q MI with subset of ST depression only, which consisted of 441 patients. Moreover cumulative one year mortality increased by 40% in patients with non-Q MI (ST - depression subset) treated with streptokinase compared to placebo [4]. The TIMI-IIIB trial focused on unstable angina and non Q-wave MI. For the non-Q MI there was no difference in death, combined death and reinfarction or strokes at six week follow up in rt-PA group compared to placebo, but there was in-

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Fig. 1 : Pre-stent angiogram

crease in reinfarction in the rt-PA group [2]. It is possible that the subtotal occlusion in non-Q wave MI and unstable angina have platelet enriched thrombi which are more resistant to thrombolysis than thrombi causing Q-MI, and that with incomplete occlusion there is continued access to procoagulant substances.

The patient was given calcium channel blockers, which was done on the basis of reported benefit of combination of aspirin and diltiazem for secondary prevention [5,6].

In this patient coronary angiography and intervention was planned because of his unstable condition. The 1987 American College of Cardiology-American Heart Association guidelines for coronary angiography recommended routine coronary angiography for all patients after non-Q MI [7], newer guidelines no longer endorse this approach [8]. There is still controversy about early or late coronary intervention in this group of patients. Earlier studies showed no benefit from early intervention [9]. In the TIMI-IIIb there was no significant difference in the rate of death or recurrent infarction at 6 weeks in the subgroup of 476 patients of non-Q MI, who were randomly assigned to invasive or conservative approach [2]. But there are certain limitations in these studies as these were conducted before coronary stents or platelet glycoproteins IIb/IIIa receptor antagonist were freely available which improve results of coronary intervention procedures [10,11].

In this patient NIR stent was deployed. Stents in AMI are feasible and safe with procedural success of > 90% and incidence of stent thrombosis 0-9.6% [11]. Elective coronary angioplasty in patients with post infarction angina after non-Q MI does not differ in prognosis from Q-MI. The management strategy after AMI should not be based on absence or presence of Q-wave on ECG [12].

Fig. 2 : Post-stent angiogram

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