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**Background:** The TIMI frame count (TFC) has been proposed as a method to assess coronary blood flow. The TFC reflects coronary flow reserve. Cardiac hypertrophy is associated with a decrease in coronary reserve. Several factors have been shown to relate with TFC, but the relation between left ventricular hypertrophy (LVH) and TFC has not yet been investigated.

**Aims and objectives:** To determine whether LVH affects TFC.

**Materials and Methods:** The TFC was measured in 200 subjects without history of myocardial infarction and significant coronary stenosis. Determination of left ventricular mass index (LVMI) according to the formula of Devereux was performed, and LVH was defined by LVMI >134 g/m² in men and >110 g/m² in women. The patients were divided into 2 groups according to presence of LVH: group 1 with LVH (n = 16; aged 51 ± 11 years; 8 women), and group 2 without LVH (n = 18; aged 50 ±8 years; 8 women).

**Results:** The mean TFC in the right coronary artery (RCA) was significantly higher in group1 (24.1 ±4.9 frames) than in group 2 (20.9 ±5.4 frames, p = 0.01). A similar trend was found in the left coronary artery. Left ventricular hypertrophy was associated with lower TFC in the RCA (r = 0.36; p = 0.004) and left ventricular posterior wall thickness (r = 0.33; p = 0.007), but not with LVMI (r = 0.18; p = 0.17). The mean TFC in the left anterior descending (LAD) and left circumflex (Cx) arteries were not different between the two groups. No correlation existed between TFC in the LAD or LCx and echocardiographic parameters.

**Conclusions:** Left ventricular hypertrophy has significant effect on the TFC in the RCA but not in LAD and LCX. Therefore, studies comparing TFC need to consider LVH.

A non-inTeRventional prospEctive observational Study to Understand the usage pattern of Ticagrelor in Indian patients with acute coronary syndrome (TREASURE)

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**Background:** Antiplatelet therapy with platelet P2Y12 receptor antagonists is a cornerstone of antithrombotic treatment in patients. Since the data is largely derived from clinical trials, the TREASURE observational study is designed to address the need to understand the usage pattern of Ticagrelor in real life scenario in large number of ACS patients in India. To our knowledge, it will be largest ever antiplatelet agent related observational study in real world scenario in India.

**Objectives:** To describe the usage pattern of Ticagrelor in various ACS patient population who undergo either PCI, CABG or medical management in a real-life setting from 60 different centers in India.

**Methods:** This is an observational, multi-centric, prospective study. Study proposes to include 3000 subjects from 60 centres across India. Key inclusion Criteria would be provision of subject informed consent and Patients who had been hospitalized for ACS and are on ticagrelor on discharge or on Ticagrelor therapy for ≤1month will be enrolled in the study and followed up for a period of 12 months. Demographic data, Diagnosis (type of ACS), Management of ACS, Laboratory investigations, relevant history, physical examination will be collated.

**Results:** Study is expected to fill a significant gap exists in our knowledge to understand the usage pattern of Ticagrelor in real life scenario in large number of ACS patients in India. The aim of this national study is to understand the usage pattern (including the duration of treatment) of Ticagrelor in various ACS patient population undergoing PCI, CABG or medical management in a real-life setting in India.

Moreover, patients with various risk factors (i.e. elderly patients, diabetes, renal impairment, smoking, GRACE risk score) and their association with ACS and Ticagrelor usage will be measured. Study also intends to record any clinical event (CV event, Bleeding etc) during the follow up period of the study.

**Conclusion:** The multicenter national study will allow generating real life evidence by involving patients from different geographies and healthcare systems in India. The study is intended to provide useful evidence of the ticagrelor usage in variety of ACS patients in actual hospital settings. Along with the PLATO study result; this data will be extremely useful to optimize ACS management in India in order to save more lives.

**ATLANTIC study and ACS management at secondary care centre: Is it a time to change the Indian practice?**

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**Background:** Primary percutaneous coronary intervention (PCI) is the treatment of choice for patients presenting with acute ST-segment elevation myocardial infarction (STEMI). However, if catheterization facilities are not immediately available (e.g. countries like India) the effectiveness of PCI can be affected by delays in transfer. Evidence suggests that antiplatelet therapy administered early, preferably in the ambulance during transfer, may provide better and earlier perfusion. Ticagrelor, a direct platelet P2Y12 receptor inhibitor, is indicated for the management of patients with acute coronary syndromes. In India, a large scale Kerala ACS registry, found big time delay between ACS (Acute Coronary Patients) symptom and PCI. In this scenario, it was important to evaluate implications of ATLANTIC (Administration of Ticagrelor in the cath Lab or in the Ambulance for New ST elevation myocardial Infarction to open the Coronary artery) study in Indian scenario. This analysis is imperative in the view of the fact that the latest European Society of Cardiology (ESC) 2014 myocardial revascularization guidelines recommended P2Y12 inhibitors to be given at first medical context for patient undergoing primary PCI.

**Aim:** To evaluate whether earlier, in-ambulance or administration of Ticagrelor could safely improve coronary reperfusion in patients with STEMI transferred for PCI.

**Methods:** ATLANTIC is an international, multicenter, randomized, double-blind study involving 1862 patients with ongoing STEMI of less than 6 hours duration, comparing pre-hospital (in the ambulance) versus in-hospital (in the catheterization laboratory) treatment with Ticagrelor. The co-primary end points were the proportion of patients who did not have a 70% or greater resolution of ST-segment elevation before percutaneous coronary intervention (PCI) and the proportion of patients who did not have thrombolysis in Myocardial Infarction flow grade 3 in the infarct-related artery at initial angiography. Secondary end points
included the rates of major adverse cardiovascular events and definite stent thrombosis at 30 days.

**Results**: The median time from randomization to angiography was 48 minutes, and the median time difference between the two treatment strategies was 31 minutes. The two co-primary end points did not differ significantly between the pre-hospital and in-hospital groups (86.8% vs 87.6% and 82.6% vs 83.1% respectively, p=NS). The rates of major adverse cardiovascular events did not differ significantly between the two study groups. The rates of definite stent thrombosis were lower in the pre-hospital group than in the in-hospital group (0% vs. 0.8% in the first 24 hours, p=0.008; 0.2% vs. 1.2% at 30 days, p=0.02). Rates of major bleeding events were low and virtually identical in the two groups.

**Conclusion**: Pre-hospital administration of Ticagrelor in patients with acute STEMI appeared to be safe but did not improve pre-PCI coronary reperfusion. It may, however, reduce the risk of post-PCI stent thrombosis. Results are also aligned with the new ESC 2014 Guidelines which recommended P2Y12 inhibitors to be given at first medical context for patient undergoing primary PCI. These will particularly suitable in India where patients are arriving late at the cath lab centers. For STEMI patients undergoing PCI, it is advisable to give Ticagrelor in pre-hospital (in Ambulance or at secondary care) setting in Indian scenario.

**Study on correlation of obesity with short-term prognosis in acute myocardial infarction**

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**Background**: Obese patients with established coronary artery disease (CAD) have reduced mortality compared to normal or low body mass index (BMI) patients, irrespective of whether treated with medically, percutaneous coronary intervention (PCI) or coronary artery bypass surgery (CABG). The reason for the paradoxical U or J-shaped relation between BMI and adverse outcome is not yet clearly understood. We sought to evaluate the association of BMI and waist circumference at the time of presentation in patients with myocardial infarction with one-year adverse cardiac events.

**Methods**: In this prospective cohort study we included consecutive patients with acute myocardial infarction (MI) admitted to a tertiary care hospital during a period of one year. Upon admission, BMI and waist circumference were measured. Patients were followed-up for a period of one year for primary composite outcome of death or nonfatal MI and correlated with BMI and waist circumference categories. Body mass index was classified as underweight (BMI <18.5 kg/m²), normal weight (18.5-22.9 kg/m²), overweight (23-24.9 kg/m²), obese class I (25 to 29.9 kg/m²) or obese class II (>30 kg/m²). Waist circumference greater than 90 cm in men and 80 cm in women was categorized high.

**Results**: There were 703 patients (males 559 (79.5%), females 144 (20.4%). Among them 100(14.2%) were underweight, 351(49.9%) were of normal weight and 122 (17.3%) were overweight. Class I obesity was seen in 112 (15.9%) and class II obesity in 18(2.5%) patients. There were 227(32%) patients with high waist circumference. Over a period of one year, there were 40 (5.6%) deaths including 18 in-hospital deaths. Combined nonfatal MI and death at one year was 128(18.2%). Incidence of primary outcome was 25.0% in low BMI group, 19.9% in normal BMI group, 13.1% in overweight group, 13.4% in obese class I and 11.1% in obese class II group. In univariate analysis, the inverse correlation of obesity and primary outcome was significant by linear-by-linear association (p value = 0.007). In-hospital mortality showed no significant correlation with obesity parameters. In one year follow up period, 12.8% in high waist circumference group and 20.8 % in normal waist circumference group had primary outcome (p value=0.01). In-hospital mortality was 2.5% in high waist circumference group and 3.4% in normal waist circumference group (P value = 0.052). Both BMI and waist circumference lost their predictive value in multivariate analysis.

**Conclusions**: Low BMI and normal waist circumference were associated with a worse short term outcome in patients with acute MI. After adjusting for other variables, neither BMI nor waist circumference independently predicted cardiac events or death after acute MI.

**Cardiac rehabilitation in a major metropolitan in South India: Factors influencing patient participation**

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**Background**: The higher risk for coronary heart disease (CHD) in South Asians at a younger age is attributed to the higher levels of conventional risk factors. However, cardiac rehabilitation (CR) is yet to gain momentum in the subcontinent. We aimed to analyse the factors that influence participation in a CR program in a single center in South India.

**Methods**: All patients referred for CR between May and July 2014 were included. Age, gender, work status, residence address, past medical history and treatment history were documented. A typical CR program (TCR) included 24 sessions spread over 12 weeks, each session lasting 90 minutes. A modified CR program (MCR) had fewer sessions and a home-based CR program (HCR) was followed at home with a monthly visit to the CR facility. Patients were motivated by the physician to attend group sessions at a fixed schedule based on their convenience. CR was exercise-based with education on balanced diet and stress management, and psychosocial counseling.

**Results**: The study cohort included 24 patients with coronary heart disease (58±9 years, 88% males). Working individuals (n=17), retired people (n=5) and homemakers (n=2) constituted the cohort. While majority lived in the same city as the CR facility, 8 (33%) resided outside the city with commute time ≥3 hours. CR program was attended by 14 (58%) subjects of which 8 (57%) were TCR, 5 (36%) MCR and 1(7%) HCR. Of the 10 patients not following a CR program, long distance (n=8), dependent family member (n=1) and debilitating spinal tuberculosis (n=1) were the reasons.

**Conclusions**: Secondary prevention of CHD is the definitive solution to the growing rate of complications and spiraling healthcare costs in India. This study has demonstrated that patients can be motivated to attend a comprehensive CR program, with some modification to suit their requirements. Lack of easily accessible CR facilities is a deterring factor for participation.

**Relationship between ankle brachial index and coronary angiographic findings**