

Coronary Lesions in Young South Asians -A high risk Population



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Background:

International studies have shown that young patients (age ≤ 45) with ST Elevation MI are more likely to have Single vessel disease¹. However, as South Asians are a high risk population with high prevalence² and rising incidence of Premature Coronary Artery Disease, there is a need to further explore the evolving trends of coronary lesions in this population.

Objective:

To compare of coronary lesions between young (≤ 45 years) STEMI patients and Elder (>45 years) STEMI patients and to identify risk of developing certain lesions.

Methods

It was a retrospective cohort study done from 2013-2018 on patients aged between 18-65 years who presented with their first MI as ST Elevation MI and underwent immediate Coronary Catheterization and Percutaneous Intervention. Patients with factors effecting Coronary lesions like previous MI, Prior revascularization and dialysis dependant patients were excluded.

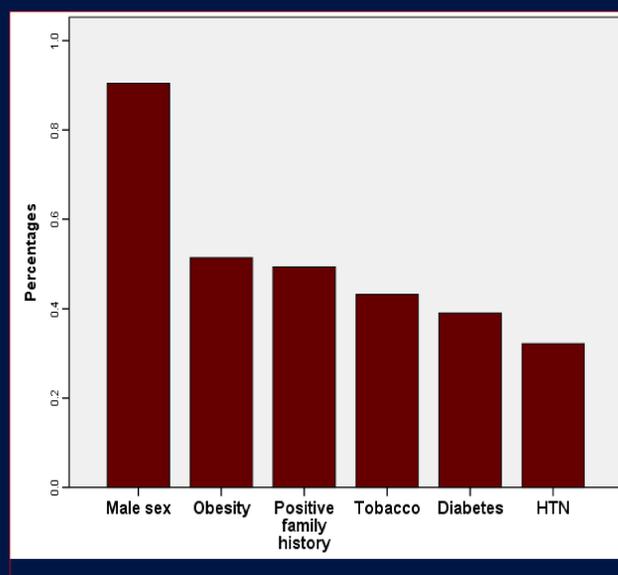


Figure I: Bar chart demonstrating the percentage of risk factors prevalent in the Young STEMI population.

Results:

There were a total of 361 patients of which, 151 patients were ≤ 45 years of age (mean age: 39.4 vs. 59.9 years). Patients in the young group were predominantly men (90.0% vs. 72.0%, $p=0.00$), obese (51.0 % vs. 36.0%, $p=0.01$) but had a lower prevalence of hypertension (31.0 % vs. 57.0%, $p=0.00$). Young patients predominantly had Single vessel disease (SVCAD) (67% vs. 45%, $p=0.00$) and the relative risk for SVCAD was 2.6 (CI 1.5-4.6) in young patients even when the model was adjusted for Gender, Obesity, Diabetes, positive family history of CAD, Hypertension and Tobacco use. (figure II).

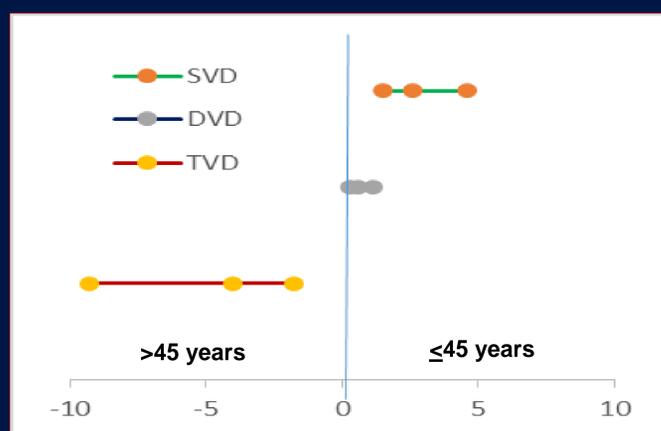


Figure II: Risk of developing Single vessel, double vessel and triple vessel disease.

LAD was commonly involved in both population groups, (78.2% vs. 74.8%, $p=0.48$) and risk of getting disease in LAD was similar among both, young and elder patients (RR 0.7, CI: 0.4-1.4). Double and triple vessel disease was more commonly seen after age 45, (23% vs. 36%, $p=0.00$) and (8% vs. 18%, $p=0.00$) respectively. Risk of triple vessel disease was greater in Elder patients, 4.1 (CI: 1.8-9.3) whereas there was non-significant difference in risk between the two groups for development of Double vessel disease, even after adjustment for the above mentioned factors.

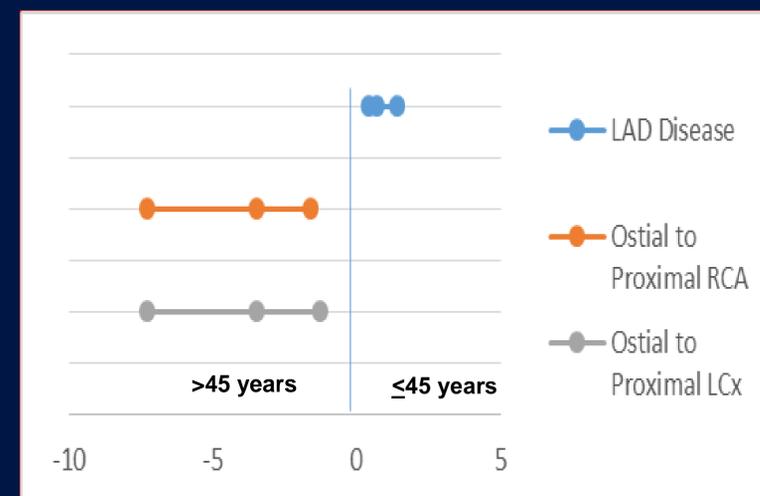


Figure III: Age wise risk of developing disease in LAD and ostio-prox to mid segments of LCx and RCA.

After age 45, it was found that other than LAD, risk of acquiring disease in Ostial to proximal LCx was 3.5 (CI: 1.6-7.3) and Ostial to Proximal RCA was 2.2 (CI: 1.2-4.2) respectively in elder subjects even when the model was adjusted for co-morbid discussed above.(figure III).

Conclusions

Young South Asian STEMI patients are predominantly Men, Obese and have elevated risk of Single Vessel Coronary Artery disease. The most commonly involved vessel is the LAD. In Elder patients, after LAD, LCx is at high risk for getting involved followed by RCA. Elder patients are more at risk for Triple vessel disease.

References:

1. Atypical risk factor profile and excellent long-term outcomes of young patients treated with primary percutaneous coronary intervention for ST-elevation myocardial infarction. European Heart Journal: Acute Cardiovascular Care. 2016 Feb;5(1):23-32.
2. Coronary artery disease pattern: a comparison among different age groups. J Ayub Med Coll Abbottabad. 2014;26(4):466-9.