

Single Vessel disease involving Left Anterior Descending (LAD) –The culprit artery in young (Age ≤ 45) patients with Acute ST elevation Myocardial infarction.

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Background:

STEMI is relatively uncommon in patients aged ≤45 yrs. However, it is more prevalent in young South Asian population¹ with coronary lesions developing at much younger ages. Unlike the conventional risk factors of diabetes and hypertension, Obesity, family history of Premature Coronary heart disease and smoking are more prevalent in this age group.²

Objective:

To determine the distribution of atherosclerotic coronary lesions in Young STEMI patients.

Methods

It was a cross-sectional study done from 2013-2018 on STEMI patients aged ≤45 years who underwent immediate Coronary Catheterization and Percutaneous Intervention. Patients with previous MI, Coronary artery bypass graft or PCI and Dialysis dependent patients were excluded as these factors might change the nature of disease. Details of risk factors and Coronary lesion anatomy were noted on a Proforma.

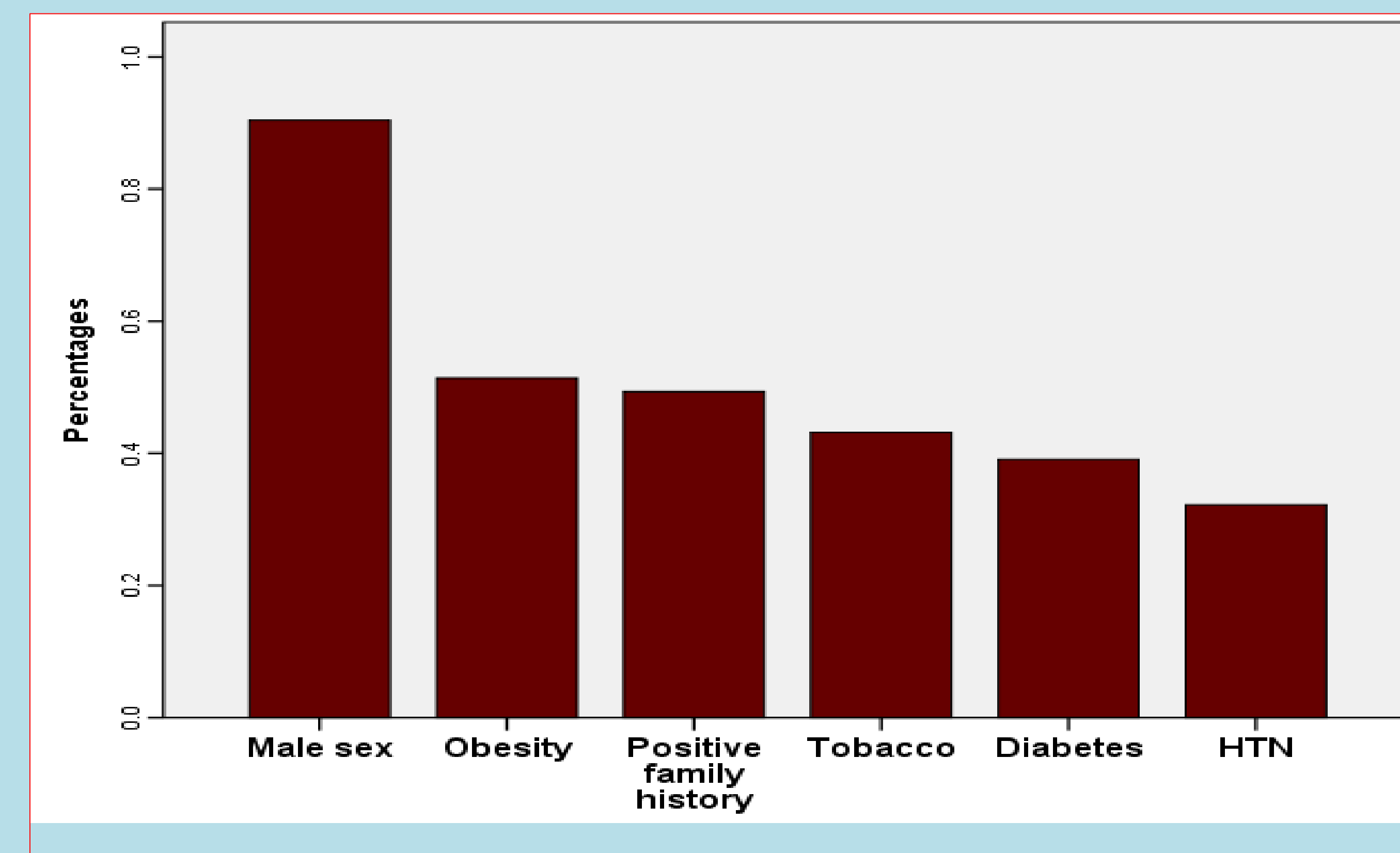


Figure I: Bar chart demonstrating the percentage of risk factors prevalent in the Young STEMI population.

Results:

Out of 169 patients, 89.9% were male and 9.5% were female. Mean age was 39.5 (±5.1). Mean BMI was 27.9 (±5.7) with 51% obese patients. Family History was positive in 47.9%, Tobacco in 45%, Diabetes in 37%, and Hypertension in 32% patients (figure I).

Coronary Lesions: Sixty seven percent (n=111) patients had isolated SVCAD, 23% had 2VCAD and 9% had 3VCAD (figure II).

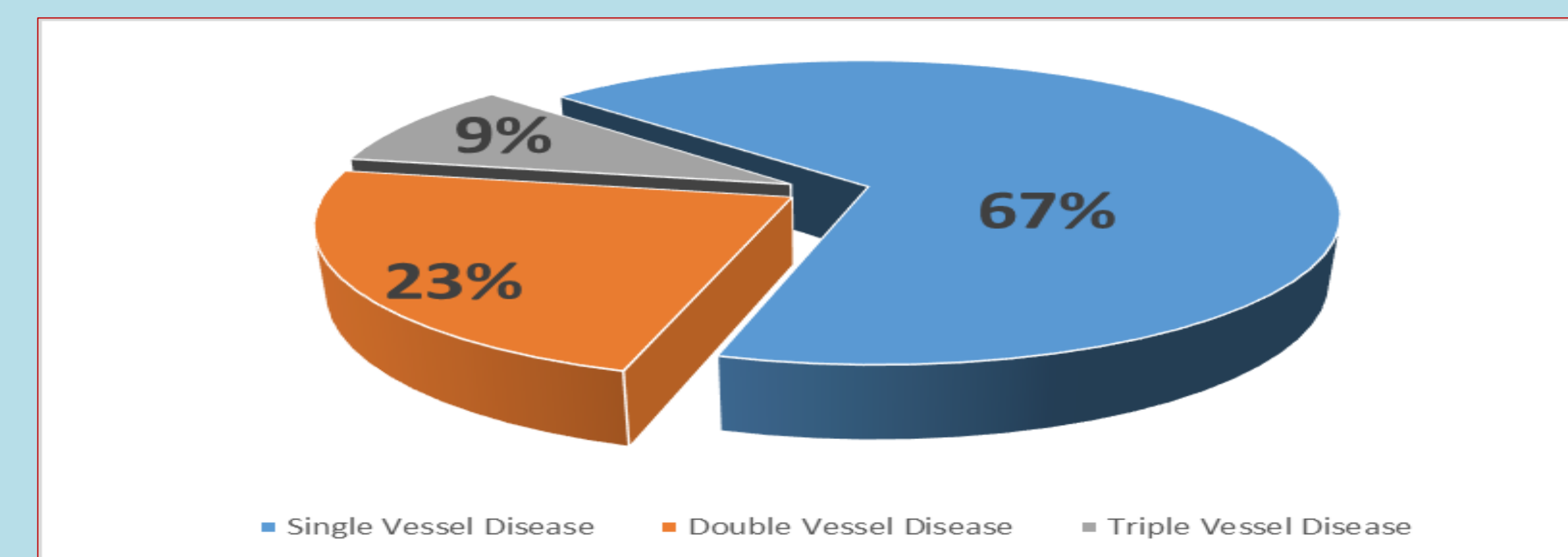


Figure II: Pie chart demonstrating the percentage values of Single vessel, double and triple vessel disease.

Out of these, 76.9% had lesion in Left anterior descending/Diagonal (LAD/D1). In 169 patients, 56.2% lesions were between Osteo-proximal to Mid LAD and 29% from mid to distal. Right coronary artery/ Posterior descending artery (RCA/PDA) was involved in 37.3%. Of all patients, 17.8% lesions in between Osteo-proximal to mid RCA and 26% lesions from mid to distal.

Left circumflex/Obtuse Marginal (LCx/OM1) was involved in 24.3%, with 11.8% of disease in between osteo-proximal to mid segments and 11.2% of disease from beyond OM1 ostium. (Figures III and IV).

Conclusions

Almost two third patients aged ≤ 45 with STEMI had Single Vessel disease. LAD was the most common culprit vessel and the most common site was Osteo-proximal to mid LAD.

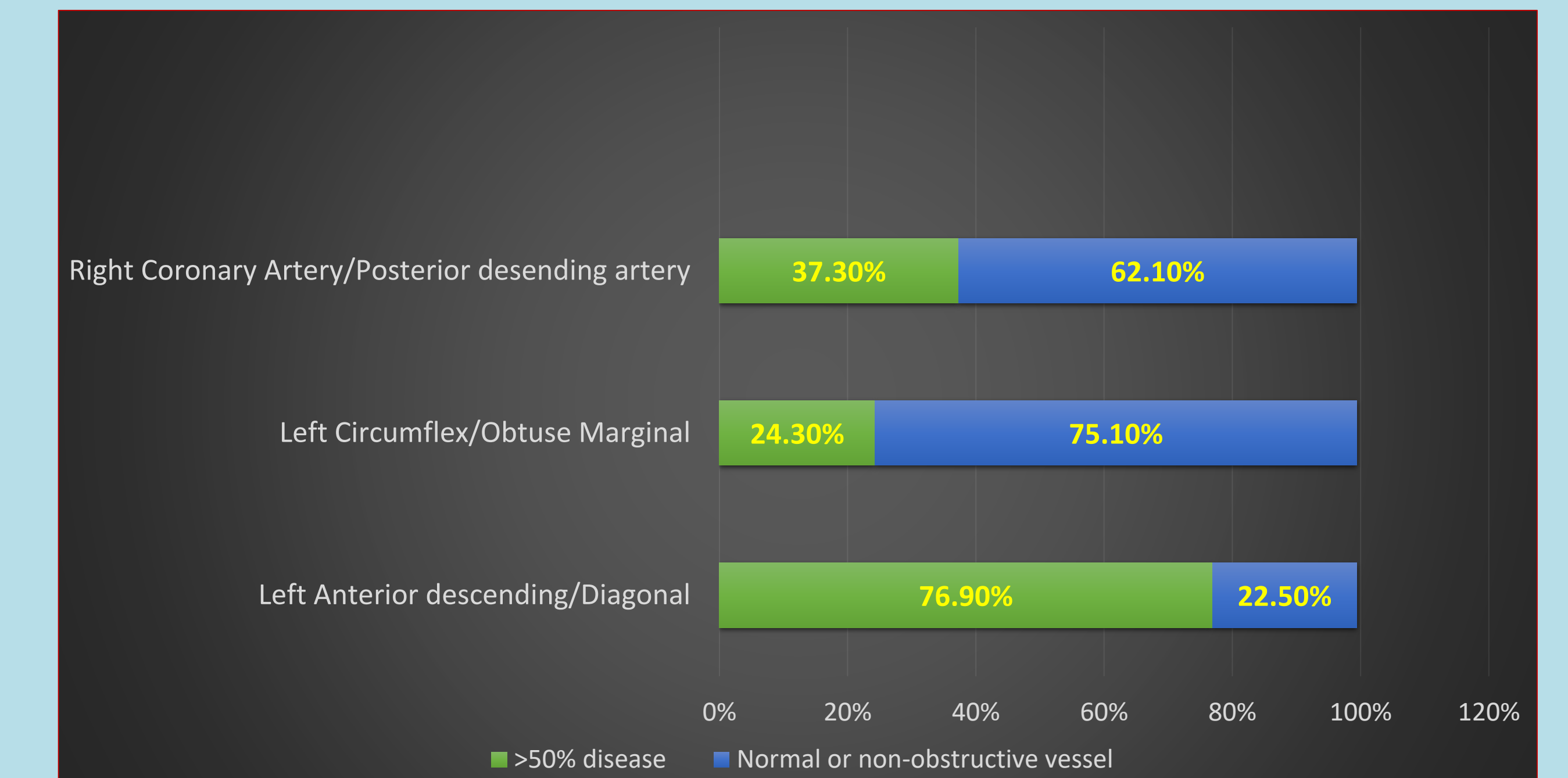


Figure III: Percentages values for involvement of Left Anterior descending, Left circumflex and Right Coronary Artery.

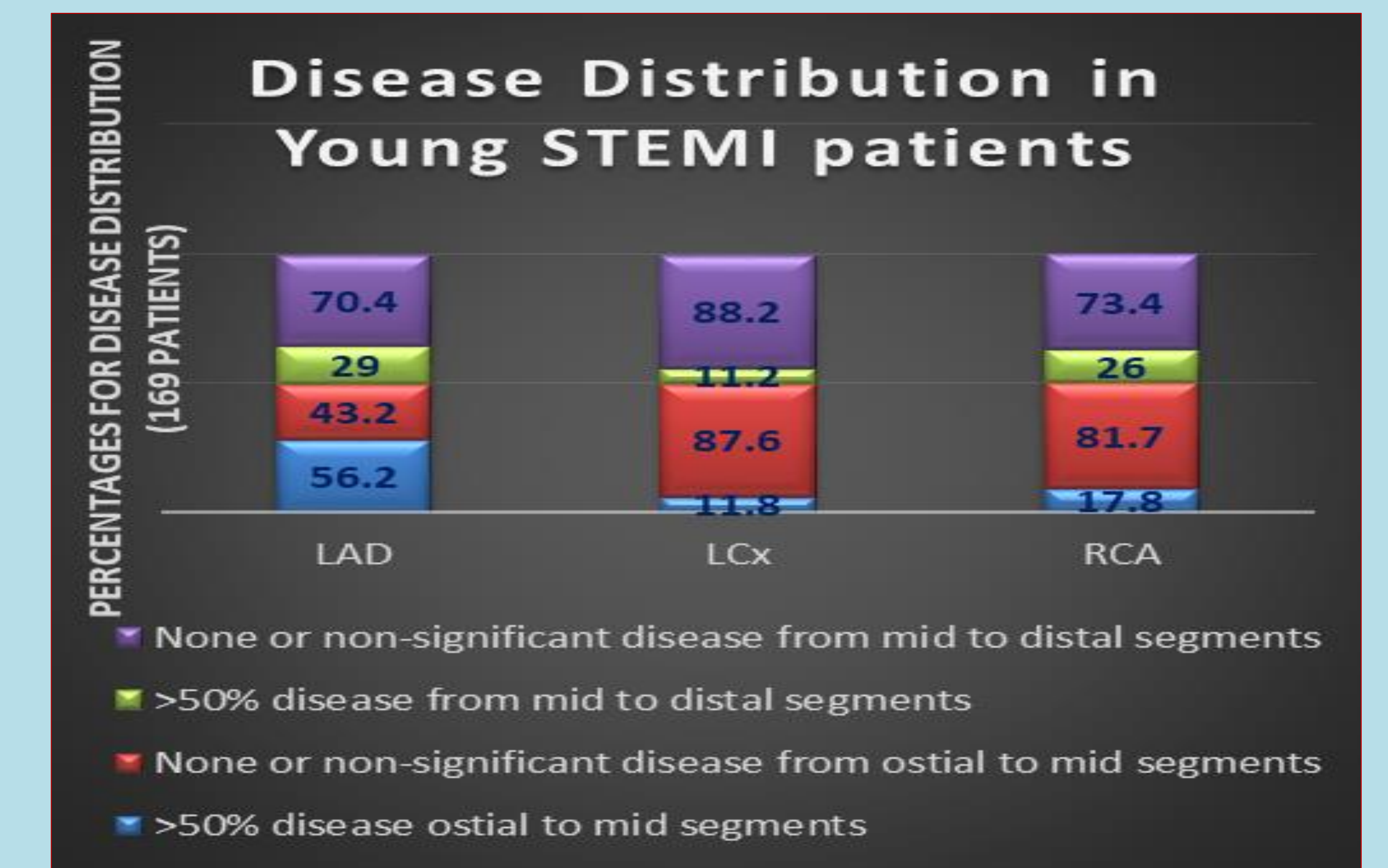


Figure IV: Percentages values for disease distribution in osteo-prox to mid and mid to distal segments for LAD, LCx and RCA.

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. Acute ST elevation myocardial infarction in young patients: 15 years of experience in a single center, Clin. Cardiol. 33 (2010) 140-148.