

Association between SYNTAX Score and Coronary Collateral Circulation

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Dear Editor,

I have read the article entitled “Which Coronary Lesions Are More Prone to Cause Acute Myocardial Infarction?” by Sen et al. with great interest, recently published in journal. The investigators reported that more than 70% of the patients with acute myocardial infarction (MI) had coronary collateral circulation (CCC) with Rentrop scores of 1-3 during primary coronary angiography. This shows that most cases of acute MI in our study originated from underlying high-grade stenosis,

challenging the common believe. Higher serum triglycerides levels, greater mean platelet volume, and increased white blood cell and neutrophil counts were independently associated with impaired development of collateral vessels.¹

Synergy between percutaneous coronary intervention with Taxus and cardiac surgery (SYNTAX) score is the angiographic scoring system and is widely used to evaluate the severity and complexity of coronary artery disease.² SYNTAX score (SS) predicts not only possible peri-procedural difficulties but also indicates the pattern of atheroma including length, thrombosis, and calcification of the lesion.³ Association between multi-vessel disease and CCC has been reported by several studies.^{4,5} Börekçi et al.⁴ reported that higher SS in patients with poor CCC. Cetin et al.⁵ observed that in the poor CCC group, SS were significantly higher compared to good CCC group.

In this context, considering association between SS and CCC, correlation of this study's result with SS may shed light on further studies.

Keywords

Myocardial Infarction; Coronary Circulation / physiopathology; Coronary Angiography; Coronary Artery Disease; Probability.

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Letter to the Editor

Reply

Dear editor

I have read the letter to the editor about my study entitled “Which Coronary Lesions Are More Prone to Cause Acute Myocardial Infarction?” with great interest. The author proposed that high Syntax score might be correlated with poor coronary collateral development.

Coronary collateral vessels serve as conduit between proximal site of occluded coronary artery and its distal parts.¹ The most important triggered effect of the collateral vessel development is the shear stress due to occlusion. 20-25% of normal humans have coronary collateral circulation but it is weak and small and it cannot be seen during coronary angiography. Pressure gradient after occlusion or severe stenosis of a coronary artery lead to endotelial stimulation and arteriogenesis and also enlargement of preexisting collateral vessels.²

In the study performed by Borekci et al.³ they found that patients with poorly developed collateral coronary circulation had higher SYNTAX scores compared with the well-developed coronary collateral group. However, multivariate analysis revealed that there was no relationship between SYNTAX score and coronary collateral flow. So far, there has not been a specific study addressing this issue. In our study, we did not calculate the SYNTAX score because it was not the aim of the study. I think that other specific trials addressing this issue are needed to determine if there is any relationship between the SYNTAX score and the coronary circulation or not. In addition, the possible mechanism of this relationship has to be explained.

Taner Sen

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