

Pattern of coronary artery disease when right coronary artery becomes a non-dominant vessel: a single center angiographic analysis

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In 15% of patients, the Right Coronary Artery (RCA) is said to be "non-dominant" since it does not supply circulation to the inferior portion of the inter-ventricular septum via right posterior descending coronary artery and posterior left ventricular branches. It is interesting to study the pattern of left sided coronary involvement, since in this situation the left system is the main supply to the major part of the heart. Therefore the aim of this study is to identify the pattern of coronary involvement in patients with non-dominant right coronary artery.

A retrospective cross sectional study was performed over the patients who underwent coronary angiography in 2015 January to 2015 December. The coronary anatomy and lesion characteristics were visually analyzed by two separate investigators.

A total of 1531 coronary angiograms was evaluated and 1315 (86%) had RCA dominance, 49 (3%) had a co dominant system and 167 (11%) had left dominant system. Among those who had left dominant system, 9% had LMCA involvement, 53% had Left Anterior Descending (LAD) artery and 29% had Left circumflex (LCX) involvement and 20.4% had both LAD and LCX involvement. There were 22.3% Chronic Total Occlusion (CTO) of the LAD and 10.8% of CTO in the LCX. There were 12% patients having Triple Vessel Disease (TVD) and 34.2% patients having SVD. Occurrence of single vessel disease is statically significant ($p=0.001$) compared to the occurrence of TVD (12.8 %) in RCA non-dominant patients. The patients who had diabetes mellitus and non-dominant RCA had no statistically significant ($p=0.38$) diffuse involvement of RCA compared to non-diabetic population. Multi-vessel involvement in diabetic patients (16.3%) compared to non-diabetic patients (16.9%) with non-dominant RCA was not statistically significant ($p=0.1$).

In patients with dominant left coronary artery system the most frequently involved pattern is SVD with LAD being the most targeted territory.