

change in the difference between follow up and post-CTO PCI FFR value (P value 0.002). FFR collateral reduced significantly at follow-up (p value 0.000).

Conclusion Successful recanalisation of a RCA CTO results in increase in major donor vessel coronary pressure-derived indices at follow up procedure associated with the regression of collateral function. In patients with multi-vessel disease, the expected change and the optimal timing to perform PCI in donor vessel should be considered when planning multi-vessel revascularisation in this setting.

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THE PHYSIOLOGICAL IMPACT OF CORONARY CHRONIC TOTAL OCCLUSION (CTO) PERCUTANEOUS CORONARY INTERVENTION (PCI) ON DONOR VESSEL CORONARY PRESSURE-DERIVED MEASUREMENTS AND THE INFLUENCE OF COLLATERAL CIRCULATION

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Background There is strong evidence of FFR guided treatment in multi-vessel disease. Multi-vessel disease is present in up to 66% of patients with CTO in a large registry analysis. The presence of a concomitant CTO may influence the FFR measurement in donor vessel as suggested in previous studies and reports. This has an important implication on clinical decision making for complete revascularisation in patients with chronic total occlusions. There is a growing interest on the influence of collateral circulation, flow, amount of myocardium supplied by donor artery to a CTO and the impact of CTO revascularisation on donor vessel pressure-derived indices. We sought to investigate the physiological impact of CTO recanalisation on donor vessel pressure-derived indices.

Methods The study participants were patients with angina who had RCA CTO. 34 out of 40 consecutive patients

underwent successful PCI to RCA CTOs during the study period were included in the analysis. Coronary pressure-derived indices (resting Pd/Pa, iFR and FFR) were measured pre and post successful RCA CTO PCI in donor vessels. Donor vessel characteristics were graded using the Rentrop and collateral connexion grading classification.

Results The mean age was 61.76 years. The mean estimated CTO duration was 238.72 weeks and CTO length was 32.44 mm. 31 patients had ischaemia and or viability in the RCA territory assessed with cardiac MRI.

LAD was the predominant donor vessel in 30 patients and LCX was the minor donor vessel in 4 patients. Percent stenosis on QCA in the predominant and minor donor vessel were 41.43% and 35.05% respectively. The angiographic details are as outlined in table 1. The mean resting Pd/Pa, iFR and FFR pre and post RCA CTO PCI in major donor vessel were (0.891, 0.858, 0.759) and (0.903, 0.882, 0.746) respectively. iFR in the major donor vessel increased from 0.858 to 0.882 (difference, 0.02412 (0.00573 to 0.04250); p=0.012). There were no significant difference in resting Pd/Pa and FFR pre and post CTO PCI (p=0.109 and p=0.388 respectively).

The mean resting Pd/Pa, iFR and FFR pre and post RCA CTO PCI in minor donor vessel were (0.982, 0.969, 0.894) and (0.985, 0.979, 0.885) respectively. There were no significant difference in resting Pd/Pa, iFR and FFR pre and post CTO PCI in minor donor vessel (p=0.534, p=0.152, p=0.183 respectively).

The mean collateral FFR was 0.310. The mean total ischaemic burden on baseline cardiac MRI in RCA territory was 12.6%.

Conclusion Successful recanalisation of a RCA CTO results in increase in iFR but no significant difference was seen in resting Pd/Pa and FFR pre-RCA CTO PCI and immediately post recanalisation in predominant donor vessel. Complete collateral regression was not observed in all patients immediately post RCA CTO PCI and this may account for the non-significant change in FFR values.

Abstract 24 Table 1 Angiographic Characteristics

Angiographic Characteristics			
		n	%
CTO Vessel	RCA	34	100
Predominant donor vessel	LAD	30	88
	LCX	4	12
Overall Rentrop Classification grading		Pre CTO PCI (n)	Immediately Post CTO PCI (n)
	0	0	3
	1	0	25
	2	2	6
	3	32	0
Overall Collateral Connection Classification grading	0	0	23
	1	3	10
	2	22	0
	3	9	1