

DOES THE SECOND GENERATION OCT IMPROVE SAFETY AND FEASIBILITY IN CLINICAL PRACTICE? A SINGLE CENTER EXPERIENCE

i2 Poster Contributions

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Background: Fourier-domain optical coherence tomography (FD-OCT) has been recently developed to overcome the limitations of conventional time-domain (TD-)OCT, particularly with respect to the need for proximal balloon occlusion. The use of a monorail FD-OCT imaging catheter over a conventional guide wire, together with the ability for rapid data acquisition (approximately 100 frames/sec) and a fast motorized pullback (up to 40mm/sec), might offer advantages in clinical practice.

Methods: We prospectively evaluated the safety and feasibility of intracoronary FD-OCT in patients scheduled for percutaneous coronary intervention. These data were compared to a historic cohort (Group A: TD-OCT with proximal balloon occlusion, Group B: TD-OCT with non-occlusive flush technique; Group C: FD-OCT). Flushing was performed using lactated Ringers (Group A) and X-ray contrast (Groups B and C). The length of vessel imaged, image quality, image acquisition time, and total volume of X-ray contrast required to clear the artery of blood were recorded together with the incidence of transient myocardial ischemia (chest pain, ST segment changes, arrhythmia) and major adverse cardiovascular events (MACE).

Results: The results are shown in the table. No group showed any MACE associated with OCT imaging.

Conclusions: FD-technology increases the safety and feasibility of intracoronary OCT, allowing a simple, fast pullback to be performed over long segments of coronary artery without any clinical consequences.

	Group A	Group B	Group C	A vs B	A vs C	B vs C
n	108	115	66			
Image acquisition time (s)	34.0 ± 10.1	13.1 ± 3.9	3.8 ± 1.4	p<0.01	p<0.01	p<0.01
Imaged vessel length (mm)	32.1 ± 9.5	36.7 ± 12.3	58 ± 19.8	p<0.05	p<0.01	p<0.01
Total X ray contrast volume (ml)	unnecessary	35.5 ± 15.1	17.3 ± 5.0	-	-	p<0.01
Transient myocardial ischemia , n(%)	75 (69.4)	25 (20.8)	0	p<0.01	p<0.01	p<0.01
VT/VF, n(%)	0	3 (2.6)	0	ns	-	ns
Dissection	2 (1.9)	0	0	ns	ns	-
Thrombus formation	0	0	1 (1.5)	-	ns	ns
Any MACE during or within 24 hour after the procedure	0	0	0	-	-	-