

The Impact of Long Lesion on Outcomes in Patients Undergoing First PCI with 2nd Generation DES

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Background: Diffuse long lesions have been associated with adverse events in percutaneous coronary intervention (PCI) with bare metal stent and the 1st generation drug-eluting stents (DES). However, the exact impact of lesion length on the second-generation DES implantation is not as clear. The aim of this study was to compare clinical outcomes between diffuse long and short lesion in patients undergoing PCI with the 2nd generation DES implantation.

Methods: A total of 450 consecutive patients undergoing the first single vessel PCI with the 2nd generation DES (zotarolimus, everolimus or biolimus-eluting stent) from Jan 2011 to Sep 2012 were enrolled in a single-center prospective registry. The patients were divided into the long lesion group (stent segment >30mm, n=123, 27%) and the short lesion group (≤ 30 mm, n=327, 73%). Primary end-points were 1-year major adverse cardiac events (MACEs), the composite of cardiac death, non-fatal myocardial infarction, and ischemia driven target vessel revascularization. Secondary end-point was stent thrombosis.

Results: Clinical characteristics were well balanced in both groups except diabetes more common in the long lesion group than in the short lesion group (40.0% vs. 26.9%, $p=0.008$). Mean stent length was 45.9 ± 12.7 in the long lesion group and 21.8 ± 4.6 mm in the short lesion group ($p<0.001$). At 1 year clinical follow-up, the rate of MACEs was not significantly different between the long and short lesion groups (3.7% vs. 1.7%, $p=0.267$). In addition, stent thrombosis was similar as 0.9% in the long lesion group and 0.0% in the short lesion group ($p=0.275$). Conclusions: Long lesions were not related with adverse outcomes in patient undergoing PCI with the 2nd generation DES. Further longer term follow-up and a larger population study will be warranted to evaluate the impact of lesion length on clinical outcomes in the 2nd generation DES era.

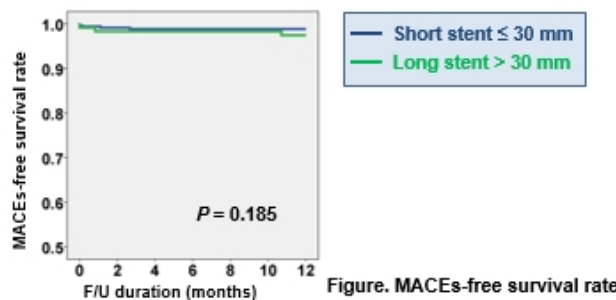


Table 1. Baseline characteristics

	Short stent (n=408)	Long stent (n=134)	P
Age, years	62.2 ± 11.6	63.8 ± 10.8	0.167
Male, n (%)	289 (70.8)	82 (61.2)	0.037
BMI, kg/m ²	25.2 ± 3.5	24.6 ± 3.0	0.213
DM, n (%)	110 (28.4)	49 (37.7)	0.026
HTN, n (%)	218 (53.4)	69 (51.9)	0.756
Current smoking, n (%)	107 (26.5)	31 (23.5)	0.416
Diagnosis			0.434
Stable angina	149 (36.5)	56 (41.8)	
Unstable angina	121 (29.7)	40 (29.9)	
Acute MI	138 (33.8)	38 (28.4)	

Table 2. Procedural data

	Short stent (n=408)	Long stent (n=134)	P
Coronary artery disease			<0.001
1 Vessel	194 (48.6)	35 (26.5)	
2 Vessels	139 (34.8)	52 (39.4)	
3 Vessels	66 (16.5)	45 (34.1)	
Intervent artery			0.259
LAD	207 (50.7)	69 (51.5)	
LCX	75 (18.4)	17 (12.7)	
RCA	126 (30.9)	48 (35.8)	
Stents per lesion, n	1.0 ± 0.0	1.6 ± 0.6	<0.001
Stent diameter, mm	3.09 ± 0.41	3.01 ± 0.33	0.022
Stent length, mm	21.8 ± 4.5	45.6 ± 12.5	<0.001
Type of stent			<0.001
Biolimus-eluting stent	133 (32.6)	20 (9.1)	
Everolimus-eluting stent	120 (29.4)	107 (48.9)	
Zotarolimus-eluting stent	74 (18.1)	74 (33.8)	