Bifurcation and Left Main Interventions

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Global risk score for choosing the best revascularization strategy in patients with unprotected left main stenosis

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Background: Coronary artery by-pass graft (CABG) is the standard of care for patients with unprotected left main stenosis (ULMS). Percutaneous coronary intervention (PCI) is only recommended in specific anatomic conditions, such as low-mid Syntax score (SS). It is unknown if the clinical and anatomic global risk classification (GRC) can enhance the indication of both revascularization therapies in those patients.
Methods: A total of 407 patients with ULMS treated with CABG (n=285) or PCI (n=122) were prospectively collected. The decision to treat with CABG or PCI was dependent on patient and physician's choice. Patients with ST elevation myocardial infarction, cardiogenic shock or valve disease were excluded. Clinical follow-up was obtained at 3 years.
Results: Patients with low-GRC (n=151) treated with CABG had a trend towards higher cardiac mortality (5.9% vs. 0%; p=0.165) and more major adverse cardiac events (MACE) (18.5% vs. 12.5%; p=0.397) than with PCI. Patients classified as mid-GRC (n=175) had similar cardiac death (11.1% vs. 10.3%; p=0.849) and MACE (20.7% vs. 22.4%; p=0.921) with CABG or PCI, respectively. Patients with high-GRC (n=81) treated with CABG had a trend towards less cardiac death (16.3% vs. 28.1%; p=0.155) and MACE (24.5% vs. 40.6%; p=0.048) than with PCI. Statistical models using the GRC as a predictor of cardiac death showed better goodness-of-fit than the anatomic SS.
Conclusions: At 3 years, patients with low and mid GRC have similar mid-term outcomes either with CABG or PCI; patients with high-GRC seem to benefit from CABG. Although further investigations are required, GRC is a better predictor of outcomes than SS.

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Early UK experience of the AXXESS dedicated bifurcation stent

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Background: Percutaneous coronary intervention (PCI) of bifurcation lesions is technically challenging and remains the focus of intense research. Currently, PCI of the main vessel (MV) with provisional side branch (SB) stenting is the recommended approach. However, not all bifurcation lesions can be treated with a one-stent technique. International societies have highlighted this problem stressing the need for dedicated bifurcation stents. We describe an early UK experience of treating bifurcation lesions using a 7-French compatible self-expanding, nitinol-based, biolimus-coated, AXXESSTM stent.
Methods: Patients with bifurcation lesions were prospectively enrolled in this study. The AXXESSTM stent was deployed at the carina followed by drug eluting stent (DES) deployment in the distal MV or SB if indicated. The procedures were carried out by experienced operators with a special interest in bifurcation lesion treatment.
Results: Forty one patients were treated with the AXXESSTM dedicated bifurcation stent over a 14-month period. Eighty eight percent patients had true bifurcation lesions and 90% patients required an additional stent in either the distal MV, SB or both. In 29% of cases, a DES was deployed proximal to the AXXESSTM stent. The device was successfully deployed in all cases while it was delivered in the optimal position in 95% patients which translated into a lesion success rate of 100%. One patient experienced a retroperitoneal bleed intra-procedurally leading to hypotension, necessitating rapid case completion which contributed to sub-optimal AXXESSTM stent placement.
Conclusions: Our data suggest that the AXXESSTM dedicated bifurcation stent can be safely used and successfully delivered to treat selective bifurcation lesions with high peri-procedural success rates. The results of this early UK experience are encouraging and will help further the confidence and capability to use this device.

Table 1. Angiographic Characteristics of Lesions Treated with AXXESS™

Target vessel	
Left anterior descending/diagonal	23 (56%)
Left circumflex/obtuse marginal	11 (27%)
Right coronary artery/posterior descending	6 (15%)
Intermediate artery	1 (2%)
Medina classification of the bifurcation lesion	
1,0,0	6 (15%)
1,1,0	5 (12%)
1,1,1	21(51%)
0,1,1	4 (10%)
0,1,0	4 (10%)
0,0,1	1 (2%)
Angle between branches	49±16
Radial access	26 (63%)
Pre-dilatation performed	41 (100%)
Pre-dilatation in proximal main vessel	39 (95%)
Pre-dilatation in distal main vessel	37 (90%)
Pre-dilatation in side branch	26 (63%)
AXXESS™ balloon size	
3.0 mm	15 (37%)
3.5 mm	26 (63%)
AXXESS™ length	
11 mm	16 (39%)
14 mm	25 (61%)
AXXESS™ delivered to	
Main branch	36 (88%)
Side branch	5 (12%)
Combination of stents delivered	
AXXESS™ only	4 (10%)
AXXESS™ and main branch only	18 (44%)
AXXESS™ and side branch only	1 (2%)
AXXESS™, main branch and side branch	18 (44%)
Final kissing balloon	27 (66%)
Device successfully delivered	41 (100%)
Device optimally placed	39 (95%)
Stent implantation proximal to AXXESS™	12 (29%)
Number of stents implanted	2.85±1.0
Length of stents implanted (mm)	47±24

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