Intracoronary Electrocardiogram-guided Strategy for the Treatment of Coronary Bifurcation Lesions – Effect on Mortality

Supplemental Material

1. Intracoronary ECG analysis

The recorded intracoronary and surface ECG leads, with simultaneously recorded aortic blood pressure curves, were printed and analyzed consecutively. The speed of the ECG recording was 50 mm/s and ECG amplitude was calibrated as 10mm/mV. In brief, measurement of the ST-segment shift is based on the determination of the isoelectric line (Supplemental Figure 1, green line) and the Junction-(J)-point (Supplemental figure 1, red dot). The isoelectric line represents the reference line for the measurement and is set at the TP-interval as recommended (17). The J-point is defined as the transition of the QRS-complex to the ST-segment. Using these two markers the calculation of the ST-segment shift is performed as the difference in mm between the isoelectric line and the ST-amplitude at the J-point. The ST-segment elevation equal or more than 0.1 mV was accepted as a sign of ischemia.

Supplemental Figure 1. Intracoronary electrocardiogram. Green line denotes the isoelectric line and red dot the J-point.

mV – millivolts; mSEC - miliseconds
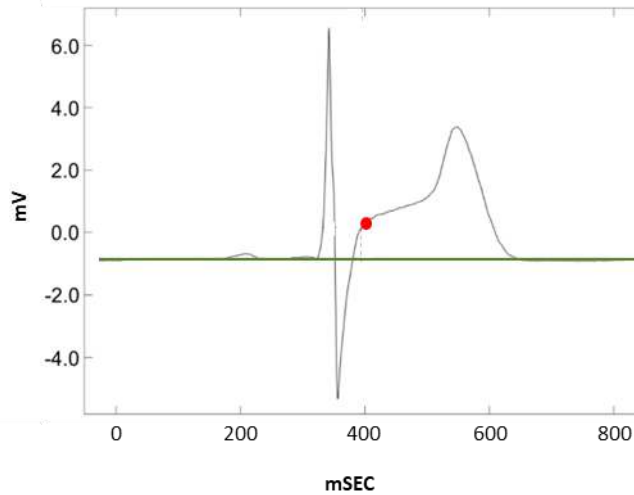
2. Provisional T-stenting protocol

Provisional stenting (PS) is recommended by the European Bifurcation Club (EBC) as the preferred strategy to treat coronary bifurcation lesions, with the intention to keep the procedure as simple as possible and aiming to minimize the number of stents needed in a bifurcation lesion. A second stent may be required in 5 to 25% of cases in the PS strategy.

Step 1. Both main and side branches are pre-dilated.

Step 2. The wire from the SB is removed and the MB is stented.

Step 3. The main branch wire is maintained. A second wire is used to re-cross the stent into the unstented vessel.

Step 4. Kissing balloon inflation with following SB post-dilatation at the operator's discretion.

Step 5. A second stent may be implanted at the ostium of SB at the operator's discretion.

Step 5. Final proximal optimization technique.

Supplementary Table 1

	icECG – group N=349	SoC – group N=419	p-value
Procedural Success, n (%)	342 (98)	406 (97)	0.209
In-hospital Adverse Events, n (%)	4 (1.2)	5 (1.2)	0.711
• Peri-procedural MI, n (%)	3 (0.9)	5 (1.2)	0.582
• Branch occlusion, n (%)	2 (0.6)	3 (0.7)	0.604
Clinically significant coronary perforation, n (%)	0 (0)	0 (0)	1.00