Long-term angiographic and clinical outcomes after coronary intervention using drug-coated balloons in acute coronary syndrome

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Aim: Aim of the study was to compare angiographic and clinical outcomes after percutaneous coronary interventions (PCI) using drug coated balloons (DCB) between patients treated for "de novo" lesions and in-stent restenosis (ISR) in acute coronary syndrome (ACS).

Patients and Methods: Study included 128 ASC patients treated with DCB between 2012 and 2019. All coronary angiographies were reviewed to determine indication, lesion complexity, vessel size and procedural success. Baseline and follow up clinical data were extracted from hospital digital database.

TABLE 1. Differences in clinical, angiographic and procedural characteristics between groups.

	ISR (N=24)	Non-ISR (N=104)	P value
Clinical characteristics			
Patient age	68.36±6.85	62.85±11.37	0.002
Family history	7 (29.2)	44 (42.3)	0.23
Active smokers	3 (12.5)	40 (38.5)	0.015
Diabetes mellitus	7 (29.2)	35 (33.7)	0.67
Arterial hypertension	21 (87.5)	90 (86.5)	0.90
Hyperlipidaemia	21 (87.5)	88 (84.6)	0.72
Previous myocardial infarction	20 (83.3)	16 (15.4)	< 0.001
Atrial fibrillation	3 (12.5)	6 (5.8)	0.24
Ejection fraction	51.4±21.1	54.3±18.2	0.33
Angiographic and procedural characteristics			
Vascular access - femoral	6 (25)	36 (34.6)	0.36
Multivessel disease	6 (25)	59 (56.7)	0.005
Bifurcation	5 (20.8)	45 (43.3)	0.042
Number of used DCB	1.0±0	1.1±0.3	0.004
Length (mm)	23.38±3.23	21.24±5.24	0.012
Diameter (mm)	2.85±0.59	2.48±0.49	0.007
Bail out PCI	0	8 (7.7)	0.16
Concomitant PCI	8 (33.3)	79 (75.9)	<0.001
Total number of stents per person	0.5	1.2	0.002

Results are presented as mean ± standard deviation or absolute number (%).
ISR = in-stent restenosis; DCB = drug coated balloons; PCI = percutaneous coronary intervention.

Results: Mean patient age was 63.8 years, with the majority being men (75.8%, N=97). In total, 24 (18.8%) patients were treated for ISR. Comparison of clinical, angiographic and procedural characteristics between groups is presented in **Table 1**. Patients in the non-ISR group had more often multivessel disease (56.7 vs 25.0%, p=0.005), bifurcation PCI (45.0 vs 20.8%, p=0.042) and more DCB used in the index event (1.1±0.3 vs 1.0±0, p=0.004). Furthermore, they had more concomitant PCI with stent implantation in other lesions (75.9 vs 33.3%, p<0.001) with consequent higher number of stents implanted per person (1.2 vs 0.5, p=0.002). Both mean DCB diameter and length were larger in the ISR group (2.85±0.59 mm vs 2.48±0.49 mm, p=0.007 and 23.38±3.23 vs 21.24±5.24 mm, p=0.012, respectively). In the non-ISR group 8 (7.7%) patients had "bail out" stent implantation, while none was done in ISR group. Mean angiographic and clinical follow up was not significantly different between groups (**Table 2**). Altogether 75 (58.6%) patients underwent repeated coronary angiography, more often in the non-ISR group (64.4% vs 33.3%, p=0.005) but most of those were elective (73.1%). There was no significant difference in the composite endpoint consisted of death, unplanned rehospitalisation, target vessel revascularization and target lesion failure (ISR vs non-ISR; 29.2% vs 26.9%, p=0.82), nor in any of its components (**Table 2**).

TABLE 2. Comparison of clinical and angiographic outcomes between groups.

	ISR (N=24)	Non-ISR (N=104)	P value
Angiographic follow up (years)	1.59±1.45	0.87±1.38	0.22
Clinical follow up (years)	2.51±2.02	2.52±2.36	0.98
Repeated coronarography	8 (33.3)	67 (64.4)	0.005
Elective	6 (25)	85 (55.8)	0.006
Target lesion failure	4 (16.7)	9 (8.6)	0.32
Target vessel revascularization	2 (8.3)	7 (6.7)	0.78
Unplanned hospitalization	6 (25)	18 (17.3)	0.38
Death	1 (4.2)	5 (4.8)	0.89

Results are presented as mean ± standard deviation or absolute number (%).
ISR=in-stent restenosis.

Conclusions: DCB in treatment of native coronary arteries provides similar angiographic and clinical outcomes compared to DCB for ISR in patients presenting with ACS in real-world settings.[1] Furthermore, the prevalence of target lesion failure after DCB treatment was smaller in native coronary arteries compared to ISR.

LITERATURE ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||

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