Incidence of restenosis after drug-coated balloon percutaneous coronary intervention in patients with diabetes mellitus – a single-centre experience

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Background: Diabetes mellitus (DM) is related to higher rates of complications after coronary revascularization.[1] The efficiency of drug-coated balloon (DCB) percutaneous coronary intervention (PCI) has been shown for in-stent restenosis (ISR) and native small-vessel disease, however data on outcomes in DM is scarce.[2] The aim is to compare the incidence of target lesion restenosis at follow-up (FUP) coronary angiography in patients with and without DM receiving DCB PCI.

Patients and Methods: The registry included patients undergoing a DCB PCI at the University Hospital Centre Zagreb from February 2011 to January 2022 (n=645). Patient demographics, comorbidities, pharmacotherapy, as well as data on the initial and FUP coronary angiography/PCI was collected. An FUP angiography was performed in 47% of patients (n=295), with a median FUP of 29 (interquartile range 8-41) months.

TABLE 1. Comparison between diabetic and non-diabetic patients.

		Patients with diabetes mellitus (n=223)	Patients without diabetes mellitus (n=422)	P -value
Initial PCI hospitalization				
Age, years (IQR)				
Male sex, n (%)		163 (73)	322 (76)	0.369
History of myocardial infarction, n (%)		110 (49)	169 (40)	0.024*
History of PCI, n (%)		148 (66)	240 (57)	0.019*
History of CABG, n (%)		14 (6)	12 (3)	0.035*
History of stroke or TIA, n (%)		21 (9)	21 (5)	0.030*
Arterial hypertension, n (%)		211 (95)	349 (83)	<0.001*
Renal insufficiency (eGFR < 45 ml/min/1.73 m^2), (%)		32 (14)	24 (6)	<0.001*
ACS as indication for DCB PCI, n (%)		102 (46)	198 (47)	0.844
Multivessel coronary disease, n (%)		130 (59)	200 (48)	0.022*
In-stent restenosis, n (%)		89 (41)	131 (31)	0.023*
Bail-out PCI, n (%)		15 (7)	25 (6)	0.668
Repeat coronary angiography				
Elective procedure, n (%)		92 (84)	154 (83)	0.795
Restenosis of target DCB PCI lesion, n (%)	Rep. coro cohort (n= 295)	19 (18)	32 (17)	0.965
	Whole cohort (n=645)	19 (9)	32 (8)	0.675

IQR – interquartile range, PCI – percutaneous coronary intervention, CABG – coronary artery bypass graft, TIA – transient ischemic attack, eGFR – estimated glomerular filtration rate, ACS – acute coronary syndrome, DCB – drug-coated balloon
* p<0.05

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Results: Data is shown in **Table 1**. The cohort was 75% male, mean age 65 ± 10 years. DM was present in 35% (n=223) of patients, equally in both sexes, and was associated with a history of myocardial infarction, PCI, coronary artery bypass grafting, stroke, as well as arterial hypertension, and renal insufficiency. No age difference was noted between groups. At initial PCI, more DM patients had multivessel coronary disease and ISR as the indication for DCB (DM vs non-DM: 41% vs 31%, p=0.023). After DCB, no group difference was noted in regard to the need for a bail-out PCI. FUP was performed in an equal percentage of patients in both groups (50% vs 45%, p=0.256), with no differences seen in the incidence of restenosis (18% vs. 17%, p=0.965), the need for target lesion PCI (15% vs. 12%, p=0.491), or the use of anti-anginal drugs.

Conclusion: The findings of our single-centre analysis show that although DM is related to more advanced comorbidities it does not increase the risk of target lesion restenosis after DCB PCI. DCB PCI should be considered as a therapeutic option in candidate patients regardless of DM status.

LITERATURE

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