

Incidence of restenosis after drug-coated balloon percutaneous coronary intervention in patients with chronic kidney disease – a single-centre experience

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Introduction: The efficiency of drug-coated balloon (DCB) percutaneous coronary intervention (PCI) has been shown for in-stent restenosis (ISR) and native small-vessel disease, with available data showing similar outcomes in both chronic kidney disease (CKD) and non-CKD patients¹. The aim is to compare the incidence of target lesion restenosis at follow-up (FUP) coronary angiography in patients with and without CKD receiving DCB PCI.

TABLE 1. Comparison between chronic kidney disease (CKD) and non-CKD patients.

	Patients with chronic kidney disease (n=57)	Patients without chronic kidney disease (n=585)	P -value	
Initial PCI hospitalization				
Age, years (mean ± SD)	72 ± 9	64 ± 10	<0.001*	
Male sex, n (%)	38 (67)	445 (76)	0.147	
History of myocardial infarction, n (%)	31 (54)	246 (42)	0.073	
History of PCI, n (%)	39 (68)	347 (59)	0.180	
History of CABG, n (%)	5 (9)	21 (4)	0.071	
History of stroke or TIA, n (%)	7 (12)	34 (6)	0.057	
History of atrial fibrillation, n (%)	19 (33)	61 (10)	<0.001*	
History of peripheral artery disease, n (%)	11 (19)	44 (8)	<0.002*	
Arterial hypertension, n (%)	55 (97)	502 (86)	0.022*	
Diabetes mellitus, n (%)	32 (56)	190 (33)	<0.001*	
ACS as indication for DCB PCI, n (%)	25 (44)	275 (47)	0.679	
Multivessel coronary disease, n (%)	39 (70)	292 (50)	0.013*	
In-stent restenosis, n (%)	25 (46)	194 (34)	0.075	
Bail-out PCI, n (%)	5 (9)	35 (6)	0.375	
Follow-up hospitalization				
Elective procedure, n (%)	18 (75)	244 (84)	0.261	
Restenosis of target DCB PCI lesion, n (%)	FUP cohort (n= 317)	4 (17)	51 (18)	0.998
	Whole cohort (n=645)	4 (7)	51 (9)	0.808

SD – standard deviation, PCI – percutaneous coronary intervention, CABG – coronary artery bypass graft, TIA – transient ischemic attack, ACS – acute coronary syndrome, DCB – drug-coated balloon
*p<0.05

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Patients and Methods: The registry included patients undergoing a DCB PCI at the University Hospital Centre Zagreb from February 2011 to January 2023 (n=652). Patient demographics, comorbidities, pharmacotherapy, as well as data on the initial and FUP coronary angiography/PCI was collected. Chronic kidney disease was defined as estimated glomerular filtration rate < 45 ml/min/1.73m². A FUP angiography was performed in 49% of patients (n=317), with a median FUP of 6 (interquartile range 3 - 18) months, without difference between groups.

Results: Data is shown in **Table 1**. The cohort was 75% male, mean age 65 ± 10 years. CKD was present in 9% (n=57) of patients and was associated with a higher incidence of arterial hypertension, diabetes mellitus, atrial fibrillation, as well as peripheral artery disease. The age difference was noted between groups, with CKD patients being older on average. At initial PCI, more CKD patients had multivessel coronary disease, with a higher rate of ISR as the indication for DCB, that was not statistically significant (CKD vs non-CKD: 46% vs 34%, p=0.075). After DCB, no difference was noted between groups in regards to the need for a bail-out PCI (9% VS 6%, P=0.375). FUP was performed in an equal percentage of patients in both groups (48% vs 51%, p=0.769), with no differences seen in the incidence of restenosis (17% vs. 18%, p=0.998), the need for target lesion PCI (17% vs. 13%, p=0.533), or the use of anti-anginal drugs.

Conclusion: The findings of our single-centre analysis show that patients with CKD do not have a higher risk of target lesion restenosis after DCB PCI, when compared to the non-CKD group, which is in accordance with currently available evidence².

LITERATURE

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