

Appropriateness of coronary revascularisation and residual disease in patients recommended to bypass graft treated with percutaneous intervention: analysis from the APACHE study

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Background: The optimal type of revascularization for stable coronary artery disease (SCAD) should take into account clinical, anatomic and procedural characteristics including anticipated completeness of revascularization. Purpose: We sought to determine inappropriateness of percutaneous coronary intervention (PCI) in SCAD patients candidate to coronary artery bypass graft (CABG). Methods: Among patients enrolled in the APACHE study we assessed use of Heart Team and ad-hoc PCI in SCAD. Recommendation to PCI, CABG or either revascularization was determined according to ESC guidelines and SYNTAX score (SS) I and II (SS-II). Completeness of revascularization was assessed with residual SYNTAX score (rSS) and SYNTAX Revascularization Index (SRI) and patients with complete vs incomplete revascularization were compared. Results: Ad-hoc PCI was performed in 133/164 (81.1%) patients with severe CAD and in 50/58 (86.2%) patients with SS-I = 23. Thirty-one patients received PCI (class IIa and IIb of recommendation according to the ESC guidelines), despite a concomitant class I recommendation for CABG, very few cases despite a class III recommendation. According to SS-II, 39/336 (11.6%) patients should have been treated with CABG. Revascularization was incomplete in 95/336(28.3%) with rSS > 8, and in 159/336 (47.3%) with SRI < 70%. Increasing age, presence of three-vessel-disease or complex disease were the most important variables associated to incomplete revascularization (see Table). Conclusions: Specialty bias – that is treatment with PCI in patients deserving CABG - is still common and it is often associated with an incomplete myocardial revascularization.

	Predictors of rSS > 8				Predictors of SRI < 70%			
	Univ HR [95% CI]	p	Multiv HR [95% CI]	p	Univ HR [95% CI]	p	Multiv HR [95% CI]	p
Age	1.03 [0.99-1.05]	0.057	1.03 [1.01-1.06]	0.038	1.03 [1.01-1.06]	0.009	1.04 [1.01-1.07]	0.006
Male gender	1.86 [0.97-3.58]	0.063	1.53 [0.71-3.26]	0.273	1.72 [0.99-3.00]	0.056	1.57 [0.83-2.99]	0.168
Diabetes	1.14 [0.71-1.82]	0.579			1.21 [0.79-1.85]	0.388		
CKD	2.83 [1.41-5.66]	0.003	2.55 [1.12-5.79]	0.026	2.10 [1.03-4.31]	0.042	1.68 [0.64-3.81]	0.210

Complex disease	5.07 [3.01-8.58]	<0.001	3.92 [2.16-7.10]	<0.001	3.73 [2.37-5.87]	<0.001	2.83 [1.71-4.67]	<0.001
3VD	3.09 [2.14-7.08]	<0.001	2.17 [1.07-4.39]	0.030	5.10 [2.52-10.34]	<0.001	3.47 [1.56-7.74]	0.002
Left main disease	0.86 [0.35-2.10]	0.745			1.40 [0.64-3.10]	0.4		
LADp disease	0.85 [0.51-1.43]	0.542			0.94 [0.59-1.50]	0.806		
CTO	3.41 [1.69-6.88]	0.001	3.77 [1.66-8.55]	0.002	2.18 [1.04-4.56]	0.039	2.21 [0.95-5.19]	0.068

rSS = residual SYNTAX score; SRI = SYNTAX revascularization index; HR = hazard ratio; CI = confidence interval; CKD = chronic kidney disease, 3VD = three vessel disease, LADp = left anterior descending proximal; CTO = chronic total occlusion.