

Cath Lab and Interventional Survey (CLICS) 2024 - Carmel report

Table 1: Patients characteristics

	Overall	Carmel, n (%)
n	4565	135
Age (mean (SD))	66.24 (12.17)	69.07 (11.62)
Age group (%)		
50 <= Age < 70	2247 (49.7)	61 (45.5)
Age < 50	402 (8.9)	8 (6.0)
Age >= 70	1876 (41.5)	65 (48.5)
Gender = Male (%)	3275 (72.1)	113 (84.3)
Diabetes = Yes (%)	1782 (43.4)	56 (44.8)
COPD = Yes (%)	297 (7.2)	4 (3.2)
Chronic renal failure = Yes (%)	475 (11.6)	7 (5.6)
Chronic dialysis = Unknown (%)	475 (100.0)	7 (100.0)
Prior stroke or TIA = Yes (%)	269 (6.5)	8 (6.4)
Prior PCI = Yes (%)	1621 (39.5)	63 (50.4)
Prior CABG or valve surgery = Yes (%)	362 (8.8)	14 (11.2)
Heart failure (%)		
Yes	630 (15.3)	28 (22.8)
No	2867 (69.8)	59 (48.0)
Unknown	608 (14.8)	36 (29.3)
% LV ejection fraction (mean (SD))	51.48 (11.86)	49.90 (12.58)
Atrial fibrillation = Yes (%)	406 (9.9)	13 (10.4)

Table 2: Procedure type distribution

	Overall n (%)	Carmel,n (%)
N	4565	135
Coronary	4109 (90.0)	125 (92.6)
Structural - Valvular	170 (3.7)	7 (5.2)
Structural - non valvular	49 (1.1)	0 (0.0)
Peripheral	30 (0.7)	0 (0.0)
Other	271 (5.9)	3 (2.2)

Table 3: Procedure type distribution among coronary procedure patients

Patient admission type	Overall	Carmel
Elective (from home)	39% (1,608)	35% (44)
Hospitalized (including urgent admission from emergency department - primary PCI, unstable NSTEMI etc.)	61% (2,501)	65% (81)
Total	100% (4,109)	100% (125)

Table 4: Time of procedure distribution

	Overall	Carmel
Regular working hours	84.11% (3,456)	61.60% (77)
Off-working hours / weekend	15.87% (652)	37.60% (47)
Missing	0.02% (1)	0.80% (1)
Total	100.00% (4,109)	100.00% (125)

Table 5: Indication for coronary procedure distribution

Indication for procedure	Overall	Carmel
Diagnostic cath before cardiac surgery	2% (73)	1% (1)
Diagnostic cath before structural percutaneous intervention (e.g. TAVI)	3% (105)	2% (3)
Heart failure symptoms	4% (182)	7% (9)
LBBB of unknown age	0% (4)	0% (0)
Non STEMI	20% (830)	25% (31)
Other	5% (201)	7% (9)
Out of hospital sudden death	0% (14)	1% (1)
Planned PCI (Staged PCI, after Heart-team discussion etc.)	6% (231)	7% (9)
Pre / Post organ transplant	1% (34)	0% (0)
Stable angina	23% (939)	14% (18)
STEMI	10% (426)	6% (8)
STEMI - Late arrival (>12 hrs)	1% (46)	0% (0)
Unstable angina (troponin negative ACS)	25% (1,022)	29% (36)
NA	0% (2)	0% (0)
Total	100% (4,109)	100% (125)

Table 6: Arterial access distribution among coronary procedure patient

Arterial access	Overall	Carmel
Right radial artery	78% (3,219)	81% (101)
Left radial artery	9% (377)	5% (6)
Femoral artery	12% (477)	13% (16)
Brachial artery	0% (10)	2% (2)
Other	1% (21)	0% (0)
NA	0% (5)	0% (0)
Total	100% (4,109)	100% (125)

Table 7: Type of coronary procedure

Type of coronary procedure	Overall	Carmel
Diagnostic angiography only (no PCI done)	47.41% (1,948)	55.20% (69)
Percutaneous coronary intervention (PCI)	52.54% (2,159)	44.80% (56)
Coronary fistulae closure	0.02% (1)	0.00% (0)
NA	0.02% (1)	0.00% (0)
Total	100.00% (4,109)	100.00% (125)

Table 8: Clinical recommendation among stable angina patient

clinical recommendation	Overall	Carmel
Cardiac surgery	6% (54)	17% (3)
Conservative/medical treatment	47% (441)	56% (10)
Heart team discussion	1% (7)	0% (0)
Immediate PCI	40% (372)	22% (4)
Immediate PCI with staged PCI procedure (Partial revascularization with planned additional PCI)	4% (42)	6% (1)
Other structural heart intervention	1% (6)	0% (0)
Planned PCI at future time	1% (12)	0% (0)
TAVI	1% (5)	0% (0)
Total	100% (939)	100% (18)

Table 9: Clinical recommendation among *urgent patient

clinical recommendation	Overall	Carmel
Cardiac surgery	6% (138)	8% (6)
Conservative/medical treatment	34% (787)	32% (24)
Heart team discussion	2% (43)	5% (4)
Immediate PCI	51% (1,186)	47% (36)
Immediate PCI with staged PCI procedure (Partial revascularization with planned additional PCI)	5% (119)	4% (3)
Other structural heart intervention	1% (27)	0% (0)
Planned PCI at future time	2% (36)	1% (1)
TAVI	0% (6)	3% (2)
Total	100% (2,342)	100% (76)

Note:

*patients with one of the following indication: Unstable angina (troponin negative ACS)/ Non STEMI/ STEMI/ STEMI - Late arrival (>12 hrs)/ LBBB of unknown age/ Out of hospital sudden death

Table 10: Ischemia evaluation among patients with stable angina who underwent PCI

	Overall	Carmel
N	438	6
Non invasive test ischemia = Yes (%)	307 (70.1)	0 (0.0)
Functional (e.g. Ergometry, stress echo, SPECT) = Yes (%)	289 (66.0)	0 (0.0)
Anatomical - Coronary CT angiography	33 (7.5)	0 (0.0)
FFR / IFR used = Yes (%)	15 (3.4)	0 (0.0)
IVUS used = Yes (%)	5 (1.1)	0 (0.0)
OCT used = Yes (%)	3 (0.7)	0 (0.0)

Table 11: Patients with stable angina who underwent PCI characteristics

	Overall, n (%)	Carmel, n (%)
N	438	6
Multivessel pci = Yes	63 (14.4)	1 (20.0)
Number of lesions treated		
0	8 (1.8)	1 (16.7)
1	290 (66.2)	4 (66.7)
2	110 (25.1)	1 (16.7)
3	18 (4.1)	0 (0.0)
4	12 (2.7)	0 (0.0)
Native coronary = Yes	433 (98.9)	5 (83.3)
SVG = Yes	3 (0.7)	0 (0.0)
LIMA/RIMA = Yes	3 (0.7)	0 (0.0)
Other arterial conduit = Yes	0 (0.0)	0 (0.0)

Table 12: Device types used among patients with stable angina who underwent PCI

	Overall, n (%)	Carmel, n (%)
N	1839	44
Drug eluting stent	1683 (91.5)	39 (88.6)
Bare metal stent	5 (0.3)	0 (0.0)
Biodergradable scaffold	0 (0.0)	0 (0.0)
Covered stent (stent graft)	2 (0.1)	0 (0.0)
Drug coated balloon	99 (5.4)	0 (0.0)
Cutting balloon	11 (0.6)	0 (0.0)
Scoring balloon	10 (0.5)	0 (0.0)
POBA	184 (10.0)	3 (6.8)
None	30 (1.6)	2 (4.5)

Note:

*it is possible to have more then one stend per patient

Table 13: Procedural complications

	All coronary procedurers		Diagnostic procedures		PCI procedures	
	Overall	Carmel	Overall	Carmel	Overall	Carmel
n	4107	125	1948	69	2159	56
Coronary artery dissection (%)	32 (0.8)	0 (0.0)	0 (0.0)	0 (0.0)	32 (1.5)	0 (0.0)
Coronary artery perforation (%)	6 (0.1)	0 (0.0)	0 (0.0)	0 (0.0)	6 (0.3)	0 (0.0)
No reflow / distal embolization (%)	21 (0.5)	0 (0.0)	1 (0.1)	0 (0.0)	20 (0.9)	0 (0.0)
Significant (>1.5 mm) side branch occlusion (%)	8 (0.2)	0 (0.0)	0 (0.0)	0 (0.0)	8 (0.4)	0 (0.0)
Tamponade (%)	3 (0.1)	0 (0.0)	1 (0.1)	0 (0.0)	2 (0.1)	0 (0.0)
Ventricular arrhythmia (%)	7 (0.2)	1 (0.8)	1 (0.1)	0 (0.0)	6 (0.3)	1 (1.8)
Significant conduction abnormality requiriung pacing (%)	1 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (0.0)	0 (0.0)
CPR (%)	11 (0.3)	1 (0.8)	3 (0.2)	1 (1.4)	8 (0.4)	0 (0.0)
Urgent cardiac surgery (%)	1 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (0.0)	0 (0.0)