

Medical Classifications pocket



1.14. Cardiac Interventions / Cardiac Surgery

1.14.1. Bedside Score for Predicting In-Hospital Mortality after a Percutaneous Coronary Intervention (PCI)

Parameter	Finding	Points	Score	Risk of In-Hospital Mortality
History of acute MI with balloon dilatation of infarct vessel	None or >24 hours from symptom onset	0	0-1.5	0%
	≤24 hours from symptom onset	1	2-3	0.25-1%
Cardiogenic shock	Absent	0	3.5-4	2-4
	Present	2.5	4.5-5	6-9%
Serum creatinine mg/dl (μmol/l)	≤1.5 (≤132.6)	0	5.5-6	14-20%
	>1.5 (>132.6)	1.5	6.5-7	30-39%
History of recent cardiac arrest	Absent	0	7.5-8	52-64%
	Present	1.5	8.5-10	75-93%
Number of diseased coronary arteries (>70% occluded)	0	0		
	1	0.5		
	2	1		
	3	1.5		
	4	2		
Age (years)	<70	0		
	≥70	1		
Left ventricular ejection fraction	≥50%	0		
	<50%	0.5		
Evidence of thrombus	Absent	0		
	Present	0.5		
Peripheral vascular disease	Absent	0		
	Present	0.5		
Gender	Male	0		
	Female	0.5		

Reference: M Moscucci et al.: Simple bedside additive test for prediction of in-hospital mortality after percutaneous coronary interventions. *Circulation* 2001; 104: 263-268

1.14.2. Qureshi Score for Predicting In-Hospital Mortality after a Percutaneous Coronary Intervention

Parameter	Finding	Points	Total Score	Risk Class	Mortality Rate
History of AMI	None	0	0	I	0.2%
	<14 days	7	3-8	II	0.5%
	≥14 days	0	9-11	III	2.3%
Serum creatinine mg/dl (μmol/l)	≤1.5 (≤132.6)	0	12-18	IV	9.1%
	>1.5 (>132.6)	4			
Extent of coronary artery disease	Single vessel disease	0			
	Multi vessel disease	4			
Age (years)	≤65	0			
	>65	3			

Reference: MA Qureshi et al.: Simplified scoring system for predicting mortality after percutaneous coronary intervention. *J Am Coll Cardiol* 2003; 42: 1890-1895

1.14.3. Risk Score for Predicting the Need for a Permanent Pacemaker after Cardiac Valve Surgery

Parameter	Finding	Pts.	Risk Group	Risk Score	Need of Post-Op Pacemaker
Right bundle branch block on pre-Op ECG	Present	2	0-1	Low	3.6%
Left bundle branch block on pre-Op ECG	Present	1	2-3	Mode-rate	9.8%
PR interv.on pre-Op ECG	>200 milliseconds	1	≥4	High	25%
Valve surgery	Single valve	0			
	Multivalve, not involv. the tricuspid valve	1			
	Multivalve involving the tricuspid valve	2			
Age of patient	≥70 years	1			
History of previous valve surgery	Yes	1			

Reference: BA Koplan et al.: Development and validation of a simple risk score to predict the need for permanent pacing after cardiac valve surgery. *J Am Coll Cardiology* 2003; 41: 795-801

1.14.4. Risk Score for Predicting Vascular Complications Associated with Percutaneous Coronary Intervention (PCI)

Parameter	Finding	Points
Age in years	<60 years	0
	60-69 years	1.5
	70-79 years	2.5
	≥80 years	3
Sex	Male	0
	Female	2
Body surface area (m ²)	>1.8	0
	1.6-1.8	1.5
	<1.6	2

Comorbidities	None	0
	Congestive heart failure	+1.5
	Bleeding disorder	+1.5
	Lower extremity vascular disease	+1.5
	COPD	+1.5
	Renal failure or creatinine >2 mg/dl (>177 μmol/l)	+2
	Priority	Elective
	Urgent	1.5
	Emergent	2
Indication	Treatment for MI	1.5
	Cardiogenic shock	2
	Other	0
Number of lesions treated	1 lesion	0
	2 lesions	1.5
	≥3 lesions	1.5

Parameter	Finding	Pts.
ACC/AHA lesion type	A	0
	B1	0
	B2	1.5
	C	1.5
Therapy	Ticloid or Plavix preprocedure	1.5
	GP IIb/IIIa bef. or during proc.	2
Total Score	Mean Percent with Vascular Complication	
0	0.3	
1	0.4	
2	0.5	
3	0.6	
4	0.8	
5	1.0	
6	1.2	
7	1.8	
8	2.5	
9	3.0	
10	4.5	
11	5.8	
12	7.5	
13	10	
14	12	

Reference: WD Piper et al.: Predicting vascular complications in percutaneous coronary interventions. Am Heart J 2003; 145: 1022-1029

1.14.5. Parsonnet Score in Cardiac Surgery Patients

Risk Factor	Finding	Weight
Gender	Female	1
	Male	0
Age (years)	<70	0
	70-74	7
	75-79	12
	≥80	20
Morbid obesity	≥1.5 times ideal weight	3
	<1.5 times ideal weight	0
Diabetes mellitus	Present	3
	Absent	0
Hypertension	Systolic BP >140 mmHg	3
	Systolic BP ≤140 mmHg	0
Ejection fraction	Good (≥50%)	0
	Fair (30-49%)	2
	Poor (<30%)	4
Reoperation	None	0
	First	5
	Second	10
Preoperative intra-aortic balloon pump	Present	2
	Absent	0
Left ventricular aneurysm	Present	5
	Absent	0
Emergency surgery	Following PTCA or catheterization complication	10
	Absent	0
Dialysis	Hemodialysis or peritoneal	10
	Absent	0
Catastrophic states	Such as acute structural defect, cardiogenic shock, acute renal failure	10-50
	Absent	0

Risk Factor	Finding	Weight
Other circumstances	Such as paraplegia, pacemaker, congenital heart disease, severe asthma	2-10
	Absent	0
Mitral valve surgery	Absent	0
	With pulmon. arterial pressure <60 mmHg	5
	With pulmon. arterial pressure ≥60 mmHg	8
Aortic valve surgery	Absent	0
	With pressure gradient <120 mmHg	5
	With pressure gradient ≥120 mmHg	7
CABG at time of valve surgery	Present	2
	Absent	0

Additive Score	Risk Group	Estimated Mortality Rate within 30 Days of Surgery
0-4	Good	1 %
5-9	Fair	5 %
10-14	Poor	9 %
15-19	High mortality	17 %
≥20	Very high mortality	31 %

Reference: V Parsonnet et al.: A method of uniform stratification of risk for evaluating the results of surgery in acquired adult heart disease. *Circulation* 1989; 79: 13-12

1.14.6. Standard European System for Cardiac Risk Evaluation (Euro SCORE)

Factor	Finding	Points
Age	Per 5 years or part thereof (over 60 years)	1
Sex	Female	1
Chronic pulmonary disease	Long-term use of bronchodilators or steroids for lung disease	1
Extracardiac arteriopathy	Any one or more of the following: claudication, carotid occlusion or >50% stenosis, previous or planned intervention of the abdominal aorta, limb arteries or carotids	2

Factor	Finding	Points
Neurol. dysfunct. disease	Severely affect. ambulation or day-to-day function	2
Previous cardiac surgery	Requiring opening of the pericardium	3
Serum creatinine mg/dl ($\mu\text{mol/l}$)	>2.26 (>200) preoperatively	2
Active endocarditis	Patient still under antibiotic treatment for endocarditis at the time of surgery	3
Clinical preoperative state	Any one or more of the following: ventricular tachycardia or fibrillation or aborted sudden death, preoperative cardiac massage, preoperative ventilation before arrival in the anesthetic room, preoperative inotropic support, intra-aortic balloon counterpulsation or preoperative acute renal failure (anuria or oliguria $<10\text{ml/h}$)	3
Unstable angina	Rest angina requiring iv nitrates until arrival in the anesthetic room	2
LV dysfunction	Moderate or LVEF 30-50%	1
	Poor or LVEF $<30\%$	3
Recent myocard. infarct.	(<90 days ago)	2
Pulmonary hypertension	Systolic PA pressure >60 mmHg	2
Emergency	Carried out on referral before the beginning of the next working day	2
Other than isolated CABG	Major cardiac procedure other than or in addition to CABG	2
Surgery on thoracic aorta	For disorder of ascending, arch or descend. aorta	3
Postinfarct septal rupture		4



EuroSCORE	Patient Risk	Mortality Rate
0-2	Low	0.8 %
3-5	Medium	3 %
≥ 6	High	11.2 %

Reference: SA Nashef et al.: European system for cardiac operative risk evaluation (Euro SCORE). Eur J Cardiothorac Surgery 1999; 16: 9-13

1.14.7. Cardiac Surgery Risk Index (Provincial Adult Cardiac Care Network of Ontario, PACCN)

Risk factor	Finding	Points	Risk Index	Risk Group
Age (years)	<65	0	0-3 points	Low
	65-74	2		
	≥75	3		
Sex	Male	0	4-7 points	Intermediate
	Female	1		
Ejection fraction	Grade I (>50%)	0	≥8 points	High
	Grade II (35-50%)	1		
	Grade III (20-34%)	2		
	Grade IV (<20%)	3		
Type of surgery	CABG only	0		
	Single valve	2		
	Complex	3		
Urgency of operation	Elective	0		
	Urgent	1		
	Emergency	4		
Repeat of operation	No	0		
	Yes	2		

Reference: B Bridgewater et al.: Predicting operative risk for coronary artery surgery in the United Kingdom: a comparison of various risk prediction algorithms. *Heart* 1998; 79: 350-355