



Background

Textbook outcome (TO) is a composite measure of surgical quality reflecting the absence of major perioperative adverse events. Originally developed to benchmark surgical performance beyond single-endpoint metrics, it provides a holistic assessment of the "ideal" postoperative course. However, its definition remains heterogeneous and inconsistently applied across studies, limiting comparability between institutions. This study evaluated the rate of TO following surgical coronary revascularization (CABG) using a comprehensive, clinically relevant composite of events.

Methods

All consecutive patients undergoing CABG between July 2021 and July 2025 were retrospectively included. TO was defined as the absence of perioperative transfusion, sternotomy conversion, prolonged mechanical ventilation (>24h), stroke, deep sternal wound infection, reoperation for bleeding, unplanned coronary revascularization, renal failure or dialysis, new postoperative atrial fibrillation, pacemaker implantation, in-hospital mortality, and 30-day readmission. TO was treated as a binary endpoint and considered achieved only when all criteria were met. Logistic regression analysis was performed to identify factors independently associated with TO.

Characteristic	No TO, N=353	TO, N=394	
Age, mean (SD)	70.16 (9.10)	66.06 (9.63)	<0.001
Male sex, n (%)	277 (78.5)	333 (84.5)	0.042
BMI, median [IQR])	27.4 [24.4, 32.3]	28.7 [26.0, 32.4]	0.010
STS score, median [IQR])	1.41 [0.78, 2.78]	0.74 [0.42, 1.36]	<0.001
Urgency, n (%)			<0.001
Elective	162 (45.9)	239 (60.7)	
Urgent	186 (52.7)	151 (38.3)	
Emergent	5 (1.4)	4 (1.0)	
Heart failure, n (%)	181 (51.3)	133 (33.8)	<0.001
Preop IABP, n (%)	61 (17.3)	32 (8.1)	<0.001
eGFR, median [IQR])	81.5 [60.6, 94.0]	86.7 [71.8, 97.8]	<0.001
Dialysis, n (%)	15 (4.2)	3 (0.8)	0.004
History of smoke, n (%)	157 (44.5)	187 (47.5)	0.457
Chronic lung disease, n (%)	72 (20.4)	47 (11.9)	0.002
HbA1c, %, mean (SD)	6.52 (1.45)	6.32 (1.38)	0.049
Diabetes, n (%)	149 (42.2)	158 (40.1)	0.610
Hypertension, n (%)	328 (92.9)	364 (92.4)	0.890
CVA, n (%)	39 (11.0)	42 (10.7)	0.958
PAD, n (%)	56 (15.9)	49 (12.4)	0.215
Liver disease, n (%)	8 (2.3)	5 (1.3)	0.447
Mediastina radiation, n (%)	7 (2.0)	2 (0.5)	0.131
Prior MI, n (%)	175 (49.6)	143 (36.3)	<0.001
Previous PCI, n (%)	99 (28.0)	95 (24.1)	0.254
Prior CABG, n (%)	1 (0.3)	2 (0.5)	>0.999
Prior Valve, n (%)	1 (0.3)	3 (0.8)	0.695
Redo chest, n (%)	4 (1.1)	7 (1.8)	0.671
Atrial fibrillation, n (%)	69 (19.5)	38 (9.6)	<0.001
Paced rhythm, n (%)	12 (3.4)	0 (0.0)	0.001
CAD, n (%)			0.005
One	26 (7.4)	54 (13.7)	
Two	88 (24.9)	119 (30.2)	
Three	236 (66.9)	218 (55.3)	
Four	3 (0.8)	3 (0.8)	
LVEF, %, median [IQR])	55.0 [45.0, 64.0]	60.0 [53.0, 65.0]	<0.001

Results

A total of 747 patients underwent CABG, including 347 (46.5%) robotic procedures. Overall, TO was achieved in 394 (52.7%) patients.

Multivariable regression analysis

Variable	OR 95%CI	p-value
Age	0.96 [0.94;0.98]	<0.001
Male sex	1.62 [1.04;2.51]	0.031
BMI	1.00 [0.97;1.03]	0.833
STS score	0.96 [0.87;1.05]	0.356
Heart failure	0.88 [0.59;1.30]	0.524
Preop IABP	0.63 [0.36;1.10]	0.102
eGFR	1.01 [1.00;1.02]	0.233
Dialysis	0.33 [0.08;1.34]	0.121
HbA1c	0.89 [0.79;0.99]	0.039
Chronic lung disease	0.62 [0.40;0.97]	0.037
Mediastinal radiation	0.32 [0.06;1.69]	0.179
Prior MI	0.78 [0.55;1.09]	0.144
Preop arrhythmia	1.07 [0.52;2.18]	0.856
Atrial fibrillation	0.54 [0.23;1.26]	0.153
LVEF	1.01 [0.99;1.02]	0.425
Total OR time	0.78 [0.68;0.90]	<0.001
LAA occlusion	1.35 [0.85;2.16]	0.207
Off pump	1.10 [0.49;2.50]	0.813
Robotic	1.72 [1.20;2.47]	0.003
Total arterial	1.54 [0.95;2.48]	0.078

Conclusions

TO was achieved in approximately half of patients and was strongly influenced by baseline risk and procedural strategy. Age, male sex, HbA1c, chronic lung disease, total OR time, off-pump techniques, and robotic surgery were independently associated with a higher likelihood of an uneventful perioperative course, supporting their role in optimizing surgical quality and patient-centered outcomes.