

Introduction

Cardiovascular disease remains the leading cause of mortality globally, predominantly attributed to coronary artery disease (CAD). CAD is influenced by both non-modifiable factors, such as age and genetics, and modifiable risk factors, including smoking and hypercholesterolemia. The progression of CAD involves the formation of atherosclerotic plaques, which can lead to significant stenosis and symptoms like angina. In patients with multivessel disease, surgical intervention is often necessary, with options including on-pump and off-pump coronary artery bypass grafting (CABG). Off-pump CABG has gained attention for its potential benefits, such as reduced early complications and improved recovery. However, it presents technical challenges due to the heart's motion during surgery. This thesis aims to evaluate clinical outcomes in patients undergoing off-pump CABG for multivessel coronary artery disease, assessing its efficacy compared to traditional methods and its implications for surgical practice.

Aim of the Work

The aim of the present study was to evaluate and assess the clinical outcomes in patients post Off pump coronary artery bypass graft surgery due to multi vessel coronary artery disease.

Patients and Methods

This prospective cohort study involved 25 patients with multi-vessel coronary artery disease (MVCAD) who underwent off-pump coronary artery bypass graft (CABG) surgery at the Cardiothoracic Surgery Department, Alexandria University.

Inclusion criteria focused on adults diagnosed with MVCAD, while patients who failed to follow up were excluded. Ethical approval was obtained, and informed consent was secured from participants. Preoperative assessments included comprehensive medical histories, clinical examinations, and various laboratory and radiological investigations. The surgical procedure involved a traditional sternotomy, with careful anesthesia management to maintain hemodynamic stability. Operative techniques included pericardial retraction and the use of a coronary stabilization device for optimal access to target vessels. Postoperative care emphasized monitoring for complications, including acute kidney injury and cerebrovascular incidents, alongside regular follow-ups to assess recovery and potential need for further interventions. Data were analyzed using IBM SPSS software, applying appropriate statistical tests to evaluate outcomes.

Results

The results of this study were tabulated and analyzed with the use of appropriate statistical methods and appropriate figures and diagrams.

Table 1: Relation between number of affected vessels and number of grafts done (n = 25)

	Number of affected vessels						MC _p
	2 (n = 6)		3 (n = 14)		4 (n = 5)		
	No.	%	No.	%	No.	%	
Number of grafts done							
1	4	66.7	0	0.0	0	0.0	0.006*
2	2	33.3	10	71.4	3	60.0	
3	0	0.0	4	28.6	2	40.0	

MC: Monte Carlo.
p: p value for comparing between number of affected vessels and number of grafts done
*: Statistically significant at p ≤ 0.05

Table 2: Descriptive analysis of the studied cases according to different postoperative parameters (n = 25)

	Min. – Max.	Mean ± SD.	Median (IQR)
Hospital stay (day)	3.0 – 6.0	3.96 ± 0.84	4.0 (3.0 – 4.0)
Ventilation (hours)	2.0 – 5.0	3.12 ± 1.01	3.0 (2.0 – 4.0)
Bleeding tendency (ML)	150.0 – 600.0	338.0 ± 108.3	300.0(300.0 – 400.0)

IQR: Inter quartile range
SD: Standard deviation

Conclusion

The study concludes that off-pump coronary artery bypass graft surgery is a promising procedure for multivessel coronary artery disease, offering benefits such as reduced transfusion, renal dysfunction, atrial fibrillation, and stroke risk reduction. However, there may be higher frequencies of incomplete revascularization. Approximately 25% of patients experienced atrial fibrillation, 16% poor cardiac output, 4% re-exploration, and 4% acute kidney damage. No reported myocardial infarctions, angioplasty, revascularization, or deaths were reported.