

IMPACT OF GENDER ON THE OPERATIVE RESULTS AFTER ADULT CARDIAC SURGERY IN ALEXANDRIA, EGYPT

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Introduction

Cardiovascular diseases (CVDs) remain the leading global cause of morbidity and mortality, with coronary artery disease (CAD) responsible for approximately 17.9 million deaths annually. Cardiac surgeries—such as coronary artery bypass grafting (CABG), valve replacements, and heart transplants—have significantly improved patient outcomes. However, gender-based disparities in cardiovascular care are well documented. Women often experience delayed diagnosis, less aggressive treatment, and worse surgical outcomes, including higher mortality, more postoperative complications, and slower recovery. These disparities are driven by a complex interplay of factors, including atypical symptom presentation, anatomical and hormonal differences, comorbidities, socioeconomic barriers, and systemic healthcare biases. Historically, cardiovascular research has focused on male populations, contributing to under-recognition and undertreatment in women. This paper explores gender-related differences in cardiac surgery outcomes, with a focus on preoperative risk factors, intraoperative strategies, and postoperative recovery. Addressing these differences is essential to ensuring equitable care and improving surgical outcomes across all genders.

Aim of the work

The aim of this study is to compare early 30 day postoperative outcomes between males and females following cardiac surgery and if there is any difference between the risk in middle eastern women compared to the west.

Patients and Methods

This prospective randomized study involved 50 consecutive patients undergoing elective cardiac surgeries—either coronary artery bypass grafting (CABG) or valve procedures—at Alexandria Main University Hospital. Participants were split evenly into two groups: 25 males (Group A) and 25 females (Group B). Eligibility required patients to be 18 or older, undergoing isolated CABG or valve surgery. Exclusion criteria include redo surgeries, emergencies, high operative risk (EuroSCORE II >2), or inability to consent.

Each patient underwent a comprehensive preoperative evaluation, including medical history, physical exam, laboratory tests, ECG, echocardiography, and imaging modalities such as CT chest and coronary angiography. Intraoperative metrics like bypass and cross-clamp times, bleeding, arrhythmias, and surgical specifics (e.g., grafts or valve type) were recorded. Postoperative outcomes were assessed complications like infections, bleeding, myocardial infarction, and ICU stay duration. Data were analyzed statistically using SPSS, applying tests such as chi-square, t-tests, and odds ratios to determine group differences.

Results

Table (1): Comparison between female and male according to pre-operative continuous variables

	Min. – Max.	Mean ± SD.	Median (IQR)	Test of Sig	p
Age (years)					
Female (n = 25)	26– 69	53.84 ± 12.23	58 (45– 63)	t=	0.524
Male (n = 25)	33 – 74	56 ± 11.55	58 (47– 65)	0.642	
BMI (kg/m2)					
Female (n = 25)	24– 42.1	34.79 ± 4.38	35.2 (33.5 –36.2)	t=	<0.001*
Male (n = 25)	23.7 – 33.4	28.38 ± 2.42	28.10 (26.8 – 30)	6.399	
EF (%)					
Female (n = 25)	50– 75	60.6 ± 6.94	60 (55 – 64)	t=	0.090
Male (n = 25)	43– 71	57.16 ± 7.12	59 (50 – 61)	1.730	
Euroscore II					
Female (n = 25)	0.5 – 2.08	0.92 ± 0.36	0.88 (0.68 – 1.04)	U=	0.005*
Male (n = 25)	0.5 – 1.03	0.67 ± 0.14	0.68 (0.56 – 0.76)	167.000 *	

Table (2):Comparison between female and male according to different postoperative continous parameters

	Min. – Max.	Mean ± SD.	Median (IQR)	U	p
Day 0 bleeding					
Female (n = 25)	125 – 975	396 ± 215.6	350 (250 – 500)	240	0.159
Male (n = 25)	150 – 1370	540.8 ± 334.6	475 (300 – 825)		
Time on ventilator					
Female (n = 25)	3 – 14	6.52 ± 2.93	6 (5 – 7)	231	0.109
Male (n = 25)	2 – 192	14.28 ± 38.12	5 (4 – 6)		
ICU stay					
Female (n = 25)	4 – 28	9.72 ± 6.35	7 (6 – 11)	178*	0.008*
Male (n = 25)	2 – 22	6.40 ± 3.77	5 (5 – 6)		
Total hospital stay					
Female (n = 25)	12 – 100	22.52 ± 17.9	17 (15 – 23)	147*	0.001*
Male (n = 25)	10 – 40	14.52 ± 6.12	13 (12– 15)		

Conclusion

variables such as BMI, EuroSCORE II, and prolonged hospital stay were found to be statistically significant in influencing postoperative outcomes, yet gender itself did not emerge as an independent predictor of cardiac surgery outcomes in this study. These findings suggest that with appropriate preoperative risk assessment and skilled surgical care, female patients can achieve outcomes comparable to their male counterparts.