

Post-cardiac surgery health related quality of life: A Saudi cross sectional study in Jeddah

Sireen Jamal Murshid (1)
 Ohood Zayed AlGarmoushi (1)
 Kholoud Salem Aljezani (1)
 Rawan Mohammed Albarakati (1)
 Khawlah Abdullah Bawazir (2)
 Intessar Sultan (3)

(1) Medical Intern, Ibn Sina National College for Medical Studies.
 (2) Teaching assistant at Ibn Sina National College for Medical Studies.
 (3) Department of Medicine, College of Medicine, Ibn Sina National College for Medical Studies

Corresponding author:

Professor Intessar Sultan.
 Ibn Sina National College for Medical Studies, Jeddah, Saudi Arabia.
 Mobile: 00966508538066.
 Email: intessars2014@gmail.com

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Abstract

Background: Cardiac surgery is rapidly evolving in Saudi Arabia with a need to address its late post-operative health related quality of life (HRQoL).

Methods: This was an analytic cross-sectional study of 83 post-cardiac surgery Saudi patients (72.3% males & 27.7% females), aged 58.48 ± 12 years, seen > 5 months after surgery. They were selected from King Abdullah Medical Complex in Jeddah between September and November 2019 using a non-probability convenient sampling technique. Their medical records were reviewed and the patients were interviewed by phone to answer the SF-36 HRQoL questionnaire.

Results: Patients had non-disability total (68.9 ± 23.2), physical (63.4 ± 26.5) and mental (68.3 ± 30.7) summary scores with only 24.1% of patients with a disability score. Compared to patients with non-disability, patients with disability had significantly more medical comorbidities ($p=0.007$) such as hypertension ($p=0.13$), diabetes ($p=0.002$), and cerebrovascular stroke ($p=0.033$). There was a significant negative correlation between age and HRQoL with disability ($r = -0.314$, $p=0.012$).

Conclusion: Post-cardiac surgery Saudi patients had an accepted HRQoL months after their surgery that could deteriorate later with their advancing age. Disability was seen in those with medical comorbidities such as hypertension, diabetes and stroke. We recommend paying more attention to elderly patients and those with comorbidities who will undergo cardiac surgery in order to improve their long lasting HRQoL.

Key words: post cardiac surgery, HRQoL, Saudi Arabia

Introduction

The World Health Organization has defined health as a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity (1). Health-related quality of life (HRQoL) is a multidimensional concept which includes physical, mental, emotional, and social functioning (2).

HRQoL is a major concern of the patients before any surgery, and especially cardiac surgery, as the heart is a major vital organ (3). Whatever the cause for which open heart surgery is performed; the final aim is to prevent premature mortality as well as morbidity including ensuring high quality of life (4,5). Post-operative HRQoL research gives the evidence-based answer of the patient's questions about how their lives will be affected, and for how long (3-14) after cardiac surgery. There are many factors that affect HRQoL postoperatively based on previous research such as gender (6,7,8), diabetes mellitus (6,8,9), smoking (9), previous stroke (9,10), and psychiatric disturbances (9,11,12). However, prediction of HRQoL by age is still a matter of controversy (10,13,14).

Review of literature has retrieved a lot of studies concerned with post-coronary artery bypass graft (CABG) HRQoL rather than any other cardiac surgery including the more frequently performed valvular surgeries (3-14).

Saudi Arabia has one of the most evolving health care systems with an increasing number of governmental cardiac centers (15). The Saudi Ministry of Health statistical yearbook has reported 59,321 cardiac, chest and vascular surgeries in 2018 in the kingdom (15). However, no Saudi studies had addressed the topic of post cardiac surgery HRQoL. Therefore, the aim of our study was to measure the HRQoL at least 5 months after open heart surgery for different etiologies, and to determine the associated factors in Saudi patients.

Methodology

This was an analytic cross-sectional study of 83 post-cardiac surgery patients. The data were collected starting in September 2019 and continued for 3 months using a non-probability convenient sampling technique. Patients were selected from the operation room's list of patients who had cardiac surgery at King Abdullah Medical Complex in Jeddah, Saudi Arabia from January 2017 to April 2019. We selected 83 patients out of 113 patients on the list if they had their surgery within the last 5 months or before. Medical records were reviewed for selected cases and the patients were interviewed for their HRQoL by phone call which lasted for 15 to 30 minutes after taking their verbal consent. HRQoL was measured using the validated Short-Form Health Survey 36-Item (SF-36) in Arabic (16,17). Exclusion criteria were Hajj or Omra patients, patients with no retrieved file numbers, incomplete data, did not reply to the phone call, refused to participate in the study or had mental or chronic debilitating conditions like advanced malignancy or end organ failure.

Medical data from medical records included demographic data, postoperative complications and co-morbidities such as diabetes mellitus, hypertension, history of stroke, and smoking. Complications included wound infection, sepsis, cardiac events like attacks of acute coronary syndrome, complete heart block, atrial fibrillation, heart failure, cardiac tamponade, and cardiac arrest, chest affection such as infection, pneumothorax, hemothorax, lung collapse and respiratory distress, plural effusion, stroke or brain infarction, bed sore and reopening.

SF-36 survey covered both physical and mental functioning. The mental health summary score was the mean of emotional well-being, emotional role-limitation, social function, and energy scores. The physical health summary score was the mean of Physical functioning, physical role-limitation, pain, and general health (16, 17). Each patient was scored from 0 to 100 according to the response. A score less than 50 was disability, 0 was maximal disability, and from 50 to 100 was non-disability. The study received ethical approval from the Research and Studies Department- Jeddah Health Affairs at the Saudi Ministry of Health as well as from the Ibn Sina National College Ethical Committee. All patient's data were preserved with confidentiality.

Statistical Analysis

All data were analyzed and Figure 1 was constructed using the SPSS 17.0 software for Windows (PASW statistics 17). Continuous variables were summarized as the mean and standard deviation (SD) and categorical variables as frequency and percentages. Computed variables were used to calculate the summary scores. Patients were divided according to their total HRQoL into 2 groups with and without disability. Comparison between both groups was performed using independent –Samples T test for continuous variables and Chi Square test for categorical variables. Pearson correlation was used to test correlations between different variables with normal distribution. For all statistics, a two-sided p-value <0.05 was considered statistically significant.

Results

A total of 83 patients were enrolled in this study, 60 (72.3%) were males and 23 (27.7%) were females, aged 58.48 ± 12 years. Type of cardiac surgery was mainly CABG (74.7%), while valvular heart surgery represented only 10% and the remaining 11% were post both CABG and valvular heart surgeries. Post-operative complications were reported in a substantial percentage of patients (42.2%). Patients were interviewed after a mean duration of 15.67 ± 7.72 months after surgery.

Some (32.5%) patients were smokers and some had comorbidities (hypertension (61.4%), diabetes (60%) and post-cerebrovascular stroke (8.4%)). Patients had non-disability total score (68.9 ± 23.2) as well as both physical (63.4 ± 26.5) and mental (68.3 ± 30.7) summary scores with only 20 (24.1%) patients who had a disability score (Table 1).

Comparison between patients with disability scores and patients without is seen in Table 2. HRQoL disability was not related to age ($p=0.101$), gender ($p=0.403$), post-operative complications ($p=0.416$), or post-operative duration ($p=0.418$), but it was related to the presence of comorbidities ($p=0.007$) such as hypertension ($p=0.13$), diabetes ($p=0.002$), and previous cerebrovascular stroke ($p=0.033$) (Table 2). There was a significant negative correlation between age and HRQoL with disability (Figure 1) ($r=-0.314$, $p=0.012$).

Table 1: The descriptive characteristics of the post-cardiac surgery patients

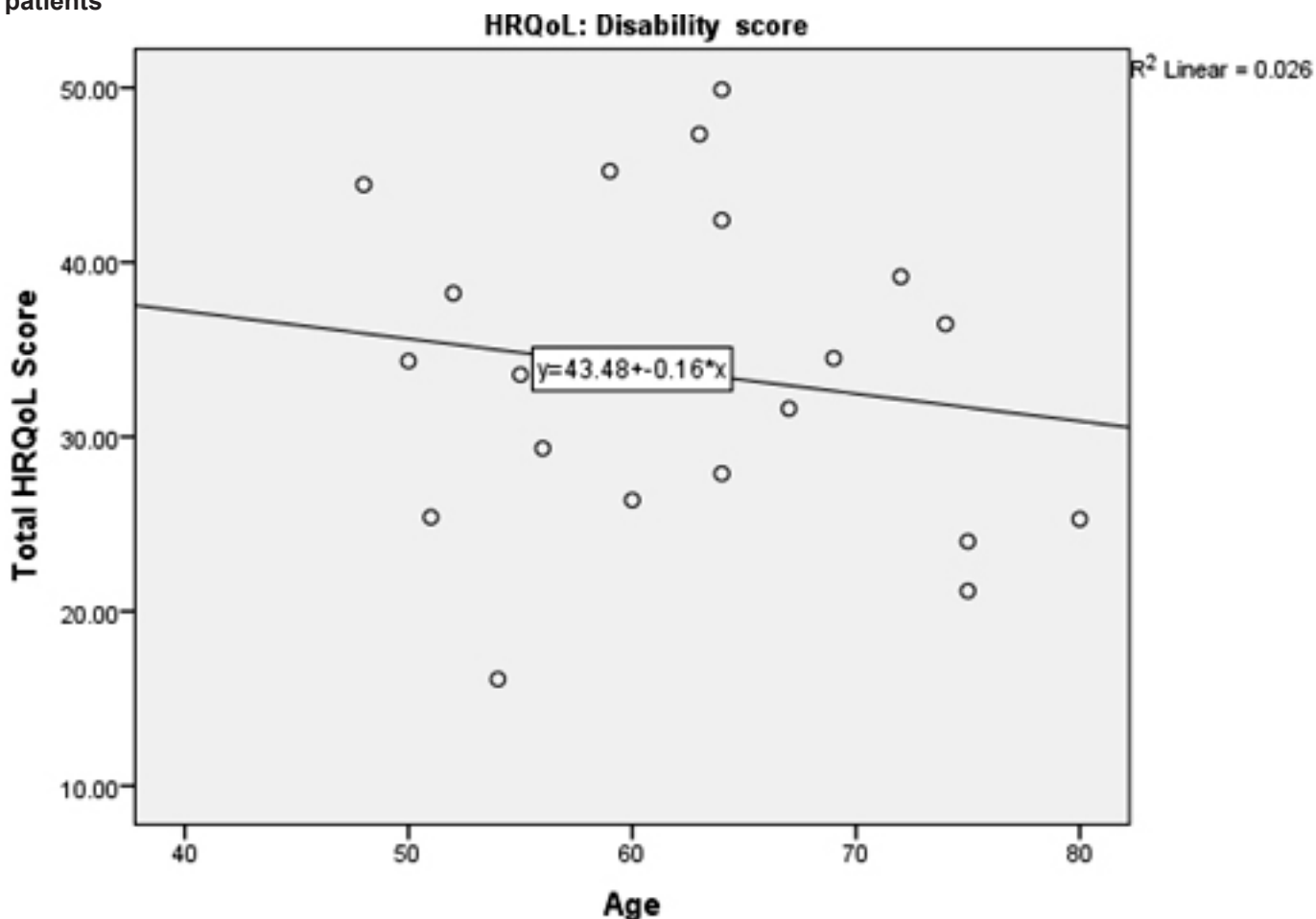
Variables		Value
Age in years: Mean \pm SD		58.76 \pm 11.92
Gender: n (%)	Males	60 (72.3)
	Females	23 (27.7)
Type of cardiac Surgery: n (%)	CABG:	62(74.7)
	Valve	10(12.0)
	Both	11(13.3)
Post-operative Complications: n (%)		35(42.2)
Post-operative duration in months: Mean \pm SD		15.67 \pm 7.72
Co-morbidities: n (%)	Hypertension	51(61.4)
	Diabetes	50(60)
	Post-Stroke	7(8.4)
Smoking: n (%)		27(32.5)
HRQOL score: Mean \pm SD	Physical summary score	63.4 \pm 26.5
	Mental summary score	68.3 \pm 30.7
	Total score	68.9 \pm 23.2
HRQoL with disability: n (%)	20(24.1)	
HRQoL with non-disability: n (%)	63(75.9)	

Table 2: Comparison between patients with and without disability HRQoL scores

		Disability HRQOL score (n=20)	Non-disability HRQOL score (n=63) Mean ± SD	P
Age in years: Mean ± SD		62.60±9.48	57.57±12.42	0.101
Gender: n	Males	13	47	0.403
	Females	7	16	
Post-operative duration in months: Mean ± SD		16.90±7.867	15.29±7.693	0.418
Smoking: n	Yes	7	20	0.787
	No	13	43	
Comorbidities: n	Yes	20	45	0.007*
	No	0	18	
HTN: n	Yes	17	34	0.013*
	No	3	29	
DM: n	Yes	18	32	0.002*
	No	2	31	
CVA: n	Yes	4	3	0.033*
	No	16	60	
Post-operative Complications: n	Yes	10	25	0.416
	No	10	38	

*P is significant <0.05

Figure 1: Significant negative correlation between age and disability HRQoL in post-operative cardiac surgery patients



Discussion

We found an acceptable HRQoL (68.9 ± 23.2) among 83 Saudi patients seen months after cardiac surgery regardless of their age, gender, type of surgery, duration of postoperative period, or post-operative complications. About a quarter of patients (24%) had disability which was significantly related to aging ($p=0.012$) and to the presence of medical comorbidities ($p=0.007$) such as hypertension, diabetes, and history of stroke.

Previous studies reported a conflicting association between HRQoL and age (10,13,14). In this study, there was a significant negative correlation between age and disability HRQoL ($r = -0.314$, $p=0.012$) despite the absence of any significant difference in age of patients with and without disability ($p=0.101$). These contradictory results of our study concerning the age may be explained by our short post-operative duration of only a few months. It might be speculated that over years rather than over months, the advancing age will negatively influence the HRQoL. This is seen in one prospective study of 272 patients who had a deteriorating physical component of their HRQoL 10 years after CABG despite its improvement 5 years post-surgery (18).

In contrast to other studies (6-8) which showed better HRQoL among males compared to females, we did not find any significant gender differences. Similarly, gender was found to have no influence in another study (10).

Our results showed that smoking did not influence the HRQoL. While this finding agrees with one study (10), it is in contrast to another (9) which reported a negative effect of smoking a year post-surgery. One possible explanation is the difference of the post-operative period between different studies.

In our study, while the immediate post-operative complications did not influence the HRQoL few months after surgery, the presence of comorbidities was the only single significant difference between those with and without disability (Table 2). Our findings agree with other studies which reported negative effects of diabetes mellitus (6,8,9) and stroke (9,10) on the post-cardiac surgery HRQoL. In contrast to our study, one study found that both hypertension and diabetes mellitus had no significant impact on HRQoL; while history of stroke and myocardial infarction were the strong predictors post-CABG (10).

In conclusion, post-cardiac surgery Saudi patients had an acceptable HRQoL many months after their surgery that could deteriorate later with their advancing age. Disability was seen in those with medical comorbidities such as hypertension, diabetes and stroke. We recommend paying more attention to elder patients and those with comorbidities who will undergo cardiac surgery in order to improve their long lasting HRQoL.

The main strength of our research is the inclusion of post-cardiac surgery of Saudi patients who had their heart surgery performed in a Saudi cardiac center as there is no published data about their HRQoL. Another strong point is the inclusion of post-valvular heart surgeries in the survey as almost all previous research work concentrated on post-CABG surgery.

On the other hand, there are several limitations in this study. First, the cross-sectional design that limits the conclusions about the cause-and-effect relationships between different variables and HRQoL. Second, the SF-36 method is generic rather than specific tool with inherited limitation to detect disease-specific outcomes, and therefore our results cannot be generalized to all post-cardiac surgery among Saudis.

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