Original Research Article

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Quality of life as a predictor of postoperative outcome following revascularization of peripheral arterial disease

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ABSTRACT

Background: Peripheral arterial disease (PAD) is associated with a significant morbidity and mortality. In addition to physical factors, patient's quality of life (QOL) i.e. individual's physical health, psychological state, level of independence, social relationships, and their relationship to salient features of their environment also influence on post-operative outcome and there by long term survival after surgery. Health related quality of life (HRQOL) is the extent to which one's usual or expected physical, emotional and social well-being are affected by a medical condition or its treatment. The purpose of this study was to compere the health-related quality of life before and after revascularization following PAD and to identify the relationship with post-operative outcome following revascularization.

Methods: Cases were divided into two groups according to presence and absence of ulceration in foot. Those patients having claudication with ulceration were enrolled in group A and those having claudication without ulceration were enrolled in group B. Data were collected from both groups preoperatively and during follow up at 1 month and 3 months by interviewing the patient according to SF-36.

Results: Two groups with preoperative poorer HRQOL (n=25) or optimum HRQOL (n=25) were compared. Postoperative outcome was found poor in Group A compered to Group B. In both groups, there was little improvement in quality of life after 1 month of surgery. In Group A QOL improved a little between 1 to 3 months postoperatively. But in Group B, there was significant improvement of postoperative QOL between 1 and 3 months. Overall, Group A patients had preoperative symptoms more prominent and their postoperative outcome was also poor.

Conclusions: Those patients who had preoperative optimum quality of life had better postoperative outcome. From this study it can be concluded that quality of life can be used as a predictor of postoperative outcome in peripheral arterial disease patients.

Keywords: Health Related Quality of Life (HRQOL), Peripheral Arterial Disease (PAD), Quality of Life (QOL)

INTRODUCTION

Chronic diseases endanger not only physical health but also psychological and social health of patient seriously and many of them live without hope to improve. Generally, peripheral arterial disease (PAD) is among such chronic diseases. PAD refers to atherosclerotic and thromboembolic processes that affect the aorta, its visceral arterial branches and arteries of the lower extremities. PAD is a systemic atherosclerotic process associated with high morbidity and mortality and significant impairment of quality of life, yet it remains under diagnosed and under treated.

Several studies have shown that the prevalence of coronary artery disease (CAD) is very high among Asian Indians.3 Unfortunately, there is very epidemiological data on PVD in individuals from the Indian subcontinent.4 Bangladesh has been experiencing epidemiological transition from communicable disease to non-communicable disease.5 The overall mortality rate has decreased significantly over the last couple of decades. But deaths due to chronic diseases, specially the 'fatal four' i.e. cardiovascular disease (CVD), cancer, chronic respiratory disease and diabetes, are increasing in alarming rate.6

The quality of a person's life may be considered in terms of its richness, completeness and contentedness. A number of factors contribute to this sense of well-being including good health, a secure social and occupational environment, financial security, spirituality, a self-confidence and strong supportive relationships. For instance, a patient will often be able to deal with an illness better if she/he would have good family support, a strong faith and the financial ability. Health related quality of life can be considered as that part of a person's overall quality that is determined primarily by their health status which can be influenced by clinical interventions.⁷

World Health Organization (WHO) defines quality of life as an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns. QOL encompasses the concept of health-related quality of life (HRQOL) and other domains such as environment, family and work. HRQOL is the extent to which one's usual or expected physical, emotional and social well-being is affected by a medical condition or its treatment. For patients suffering from peripheral arterial disease (PAD), quality of life (QoL) has become as important as medical outcome end points, such as mortality and morbidity, to evaluate the effect of disease and treatment. On

To measure QOL in my study authors have used Medical Outcomes Study 36-Item Short Form (SF-36) version 2TM (Figure 1), a 36-item measure encompassing 8 domainsphysical functioning, social functioning, mental health, role limitations due to physical problems, role limitations due to emotional problems, vitality (energy and fatigue), bodily pain, and general health perceptions- each of which is scored separately Figure 2).¹¹ The study was meaningful to patients, clinicians, researchers, and administrators across the health care spectrum. The study has various applications including measuring health improvement or decline, predicting medical expenses, assessing treatment effectiveness, comparing disease burden across populations.

METHODS

This quasi-experimental study was carried out in patients having peripheral arterial disease in lower extremity. All patients with clinical and duplex ultrasound evidence of PAD were included in the study regardless of age, gender, presence or absence of ischemic foot ulcer. Patients with PAD having previous history of arterial surgery, limb loss, gangrenous foot, concomitant cardiac, renal and hepatic disease were excluded from the study.

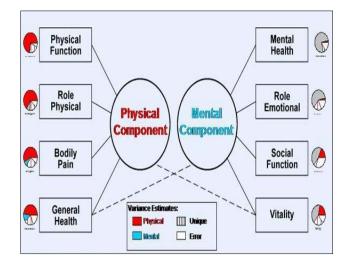


Figure 1: SF-36 scales measure physical and mental components of health.

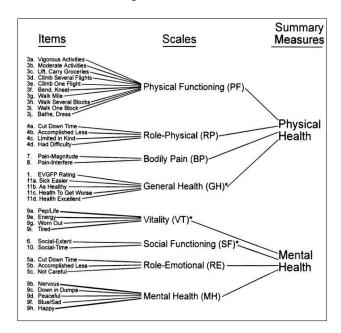


Figure 2: SF-36 measurement model.

Cases were divided into two groups according to presence and absence of ulceration in foot. Those patients having claudication with ischemic ulceration were enrolled in Group A (preoperative poorer HRQOL, n=25) and those having claudication without ulceration were enrolled in Group B (preoperative optimum HRQOL, n=25). Data were collected from both groups preoperatively and during follow up at 1 month and 3 months by interviewing the patient according to SF-36. There was no dropout of patients who were taken as

sample. Privacy and confidentiality were maintained strictly.

RESULTS

Total number of patient was 50. Claudication with or without ischemic ulceration was used to divide the patients into two groups. 25 patients having claudication with ulceration were taken in Group A. Another 25 patients without ulceration in foot were taken in Group B.

Table 1: Comparison of different domains of preoperative HRQOL between two groups.

Domain	Group A (n=25) (mean±SD)	Group B (n=25) (mean±SD)	t-test (p value)
Physical functioning	33.52±5.54	48.77±4.07	<0.001*
Role physical	31.20±4.21	44.63±4.45	<0.001*
Bodily pain	35.71±4.20	47.06±4.02	<0.001*
General health	32.88±6.51	49.78±5.53	<0.001*
Vitality	39.16±5.15	56.64±5.17	<0.001*
Social functioning	28.27±4.75	43.63±5.05	<0.001*
Role emotional	23.86±4.76	41.48±5.62	<0.001*
Mental health	22.91±4.19	47.64±6.62	<0.001*

Mean age of Group A and Group B were 54.30±7.65 years and 52.26±9.35 years respectively. 96% of Group A and 92% of Group B were male. Diabetes 42%, hypertension 46% and smoking 78% were in Group A, whereas diabetes 26%, hypertension 34% and smoking 74% were in Group B. ABI in Group A was 0.71±0.21 and in Group B was 0.76±0.17.

According to angiographic finding Aorto-iliac disease was 20%, CFA occlusion 48%, PopA occlusion 16%, ATA-PTA disease 16% in Group A. In Group B Aorto-iliac disease was 16%, CFA occlusion 48%, PopA occlusion 24% and ATA-PTA disease 12%. 20% patients of Group A had post-operative wound infection. In Group

B it was only 8%. Post-operative hospital stay for Group A and Group B was 10.20±3.66 days and 8.90±2.29 days respectively.

Table 2: Comparison of different domains of postoperative HRQOL between two groups at one month.

Domain	Group A (n=25) (mean±SD)	Group B (n=25) (mean±SD)	t-test (p value)	
Physical functioning	34.07±5.50	49.65±3.29	<0.001*	
Role physical	32.47±4.57	45.99±3.94	<0.001*	
Bodily pain	36.75±4.75	47.53±3.45	<0.001*	
General health	32.88±6.51	49.93±5.36	<0.001*	
Vitality	39.48±5.41	57.08±4.59	<0.001*	
Social functioning	28.49±4.67	43.84±5.14	<0.001*	
Role emotional	24.64±5.22	42.73±5.44	<0.001*	
Mental health	23.43±4.39	48.60±6.16	<0.001*	

Table 3: Comparison of different domains of postoperative HRQOL between two groups at three months.

Domain	Group A (n=25) (mean±SD)	Group B (n=25) (mean±SD)	t-test (p value)	
Physical functioning	35.32±5.66	52.93±2.05	<0.001*	
Role physical	34.53±4.94	49.57±3.31	<0.001*	
Bodily pain	39.71±5.45	53.11±4.25	<0.001*	
General health	33.33±6.58	51.01±4.74	<0.001*	
Vitality	40.16±6.00	60.14±3.86	<0.001*	
Social functioning	29.47±4.86	46.44±2.76	<0.001*	
Role emotional	26.82±6.15	47.32±4.17	<0.001*	
Mental health	24.33±4.66	52.86±3.93	<0.001*	

Table 4: Comparison of PCS and MCS of HRQOL from preoperative to after one month and after three-month postoperative data.

	Group A (n=2:	5)		Group B (n=25	5)	
	(mean±SD), t-test (p value)					
	Preoperative	After 1 month	After 3 months	Preoperative	After 1 month	After 3 months
Physical component summary	38.44±3.87	39.19±4.20 p <0.001*	40.89±4.72 p <0.001*	48.98±2.75	49.60±2.42 p 0.002 *	52.53±2.46 p <0.001*
Mental component summary	24.87±4.26	25.21±4.51 p 0.033 *	26.18±4.86 p <0.001*	46.26±6.19	47.01±5.82 p 0.009 *	50.73±3.57 p <0.001*

According to SF-36 scoring physical functioning, role physical, bodily pain, general health, vitality, social

functioning, role emotional and mental health- all were significant (p<0.001*) in group B at preoperative period

(Table 1), at one-month postoperative period (Table 2) and also in three months postoperative period (Table 3). In both groups PCS and MCS were more significant after 1 month and after 3 months respectively (Table 4).

DISCUSSION

From my study result we can observe that most of the patients suffered from PAD and undergone revascularization were young male irrespective of preoperative HRQOL. Nearly half of the patients of poor HRQOL suffered from diabetes and hypertension. Most of the patients of this group gave history of recurrent episodes, inadequate and discontinued medication. ABI of this group was lower. Bilateral involvement was also more in this group (Group A).

Most of the patients of both the groups also suffered from mental problems like depression, alteration of mood, fear of death etc. Their relationship with family and friends, social relationship was also impaired. It was observed that preoperative poorer HRQOL patients had prolonged hospital stay and increased rate of postoperative wound infection. Postoperative pain of both the groups gradually improved in course of time and was mostly reduced after 3 months of surgery.

Usually patients are advised not to do physical works, walking or exercise after surgery, no obvious change observed immediately after surgery, but, gradually improved in 3 months. A fair number of patients suffered from immediate postoperative depression and fear of damage of limb, mostly who had preoperative poorer HRQOL. However, with time the fear of limb loss reduced, and patient got confidence enough to return to normal life both physically and psychosocially.

In both groups, there was little improvement in quality of life after 1 month of surgery. In Group A quality of life improved a little between 1 to 3 months postoperatively. But in Group B, there was significant improvement of postoperative quality of life between 1 and 3 months. Patients of Group B had little bodily pain; most of them overcame fear, became psychologically sound, relationship with family and friends improved significantly. Overall, Group A patients had preoperative symptoms more prominent and their postoperative outcome was also poor.

Comparing with other studies it can be said that our PAD patients with aggravated symptoms, with history of recurrent episodes and associated with other co-morbid disease had poorer preoperative HRQOL.

Their psychological status was also impaired, and they had poor postoperative outcome.¹² In contrary those PAD patients were treated with revascularization earlier after diagnosis had early recovery, better physical and mental improvement.¹³

CONCLUSION

From this study it can be concluded that health related quality of life of the peripheral arterial disease patients is better after revascularization than in preoperative period. It can also be said that postoperative health related quality of life of the patient with optimum preoperative health related quality of life is better than that of the patients with poor preoperative health related quality of life. It can also be said that quality of life can be used as a predictor of postoperative outcome in peripheral arterial disease patients.

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