Original Research Article

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

Shantonu Kumar Ghosh*, Alpana Majumder

Department of Vascular Surgery, National Institute of Cardiovascular Diseases and Hospital, Dhaka, Bangladesh

Received: 05 November 2017
Accepted: 28 November 2017

*Correspondence:
Dr. Shantonu Kumar Ghosh,
E-mail: shantonukumarghosh@gmail.com

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 compare 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. Unfortunately, there is very little epidemiological data on PVD in individuals from the Indian subcontinent. Bangladesh has been experiencing epidemiological transition from communicable disease to non-communicable disease. 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.

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.

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, mental 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.

To measure QOL in my study authors have used Medical Outcomes Study 36-Item Short Form (SF-36) version 2™ (Figure 1), a 36-item measure encompassing 8 domains- physical 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. 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.](image1)

![Figure 2: SF-36 measurement model.](image2)

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.](image)

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.](image)

![Table 3: Comparison of different domains of postoperative HRQOL between two groups at three months.](image)

![Table 4: Comparison of PCS and MCS of HRQOL from preoperative to after one month and after three-month postoperative data.](image)

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.
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.

ACKNOWLEDGEMENTS

Authors would like to thank the patients who voluntarily enrolled themselves in this work. Also acknowledge the hardship of the co-author. They are grateful to the hospital authority, their colleagues and members of ethical committee.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Hirsch AT, Haskal ZJ, Hertzer NR, Bakal CW, Creager MA, Halperin JL et al. ACC/AHA 2005 guidelines for the management of patients with peripheral arterial disease: Executive summary. J Am Coll Cardiol. 2006;47:1239-312.
2. Bartholomew JR, Olin JW. Pathophysiology of peripheral arterial disease and risk factors for its development. Cleve Clin J Med. 2006;73(4):S8-14.
3. Hankey GJ, Norman PE, Eikelboom JW. Medical treatment of peripheral arterial disease. JAMA 2006;295:547-53.
4. Premalatha G, Shanithirani S, Deepa R, Markovitz J, Mohan V. Prevalence and Risk Factors of Peripheral Vascular Disease in a Selected South Indian Population. Diabetes Care. 2000;23:1295-300.
5. Islam A,Majumder A. Hypertension in Bangladesh: a review. Indian heart J, 2012;64(3):319-23.
6. Directorate General of Health Services, Ministry of Health and Family Welfare (August 2011) ‘Strategic Plan for Surveillance and Prevention of Noncommunicable Diseases in Bangladesh 2011-2015’. Dhaka, Bangladesh: Ministry of Health and Family Welfare. Available at: http://www.searo.who.int/bangladesh/publications/st rategic_plan_ncd/en [Accessed 20 June, 2016].
7. VanManen J, Bindels P, Dekker F, Bottema B, Vander J, Zee J et al. The influence of COPD on health-related quality of life independent of the influence of comorbidity. J Clin Epidemiol. 2003;56(12):1177-84.
8. World Health Organization, Division of Mental Health and Prevention of Substance Abuse. 1997,
WHOQOL measuring Quality of life. Geneva, Switzerland: World Health Organization.

9. Cella D, Bonhomie A. Measuring quality of life: 1995 update. Oncology. 1995;9:47-60.

10. Breek JC, De VJ, van Heck GL, Van Berge Henegouwen DP, Hamming JF. Assessment of disease impact in patients with intermittent claudication: discrepancy between health status and quality of life. J Vasc Surg. 2005;41:443-50.

11. Khanna D, Tsevat J. Health-related quality of life an introduction. AJMC. 2007;13(9):s218-s223.

12. Regensteiner JG, Hiatt WR, Coll JR, Criqui MH, Treat-Jacobson D, McDermott MM, et al. The impact of peripheral arterial disease on health-related quality of life in the Peripheral Arterial Disease Awareness, Risk, and Treatment: New Resources for Survival (PARTNERS) Program. Vasc Med. 2008 Feb;13(1):15-24.

13. Remes L, Isoaho R, Vahlberg T, Viitanen M, Rautava P. Quality of life among lower extremity peripheral arterial disease patients who have undergone endovascular or surgical revascularization: a case-control study. Eur J Vasc Endovasc Surg. 2010;40:618-25.

Cite this article as: Ghosh SK, Majumder A. Quality of life as a predictor of postoperative outcome following revascularization of peripheral arterial disease. Int Surg J 2018;5:315-9.