



Surgery

MULTIFACETED PROBLEMS AMONG PATIENTS UNDERGONE VALVE REPLACEMENT SURGERY: A CROSS SECTIONAL STUDY

Dr. Suresh Kumar. J* Associate professor, Cardiothoracic Surgery, Govt Medical College, Trivandrum.
*Corresponding Author

Dr. Jayan Stephen Associate Professor of Surgery, Govt Medical College Trivandrum

ABSTRACT A descriptive study was conducted among cardiac surgery patients using a non experimental design to assess their problems after valve replacement surgery. Two hundred patients after valve replacement, on the follow up period from two months were recruited using non probability sampling. The data collection period was six months. The investigator obtained clearance was obtained from Research Committee and human ethical committee, Medical College, Thiruvananthapuram. The purpose of the study was explained and a written informed consent was taken. The data was collected with the help of a structured interview schedule, on a one to one basis. The structured interview schedule used for this study consisted of four sections to cover all domains of problems faced by patients. Study revealed that patients experiences varying level of problems in multiple domains; physical, social, psychological and economical problems. Multifaceted approaches and feasible interventions are implicated for patients undergoing valve replacement surgeries to alleviate problems and to improve quality of life among such patients.

KEYWORDS : Post cardiac surgery Problems, Valve replacement, Cardiac Surgery.

INTRODUCTION

Each year over 700,000 heart surgeries take place across the world. Of those surgeries, more than 250,000 are valve repairs and valve replacements. The mortality rate for heart valve surgery is about 1.7% (The Society of Thoracic Surgeons -The Patient's Guide to Heart Valve Surgery, 2016).

Valvular surgery in India is performed mostly for RHD. In India, every year about 8,000 valve replacements are done. Of these, about 5000 are mitral valve replacements, about 2000 are aortic valve replacements, and about 1,000 are repair/ replacement of other valves. These operations cover only a fraction of the very large number of patients who need them. The high cost of prosthetic valves and inadequate facilities for operative management of these patients are hindrances to valve replacement surgery. Valve replacement surgery costs approximately 10 times the average annual income of a person.

Patients with valve prosthesis may experience various problems like haemorrhage, paravalvular leak, arrhythmia, infections, stroke, anticoagulant related complications, valve related problems, cardiac tamponade, endocarditis, heart block, renal failure, lung related problems, psychological maladjustments, lack of social support and increased financial needs (Brunner, 2008).

According to research supported by the agency for health care research and quality, it is stated that approximately one-fourth of problems after heart valve surgery are related to post-surgical bleeding. Near about 50% of problems from heart valve surgery are cardiac related (Journal of cardiovascular surgery, 2007).

Life style modifications and lifelong medications place a tremendous burden on the individual and family causing physical, physiological, psychological, social and economic problems. Following valve replacement the patients are unable to do work which results in serious economic problems and they were unable to meet their increased financial needs. Hence noncompliance to follow up and drugs increases the incidence of problems and which deteriorates their Quality Of Life. It was in this context the investigator decided to take up this study to assess the problems of patients after valve replacement surgery.

MATERIALS AND METHODS

This study adopted a non experimental design and the approach was quantitative approach. Two hundred patients after valve replacement, on the follow up period from two months were interviewed to assess their Quality of Life and to identify their problems after valve replacement. The data collection period was six months. The investigator obtained clearance from Research Committee and human ethical committee, Medical College, Thiruvananthapuram. The purpose of the study was explained and a written informed consent was taken. It was assured to them that all data would be kept strictly

confidential and used only for the study purpose. The data was collected with the help of a structured interview schedule, on a one to one basis. The structured interview schedule used for this study consisted of four sections; Socio-demographic Data, clinical data and questionnaire to assess problems after Valve Replacement. The data obtained served as a basis for preparing a CD assisted self instructional module for the patients and the family members.

RESULTS

SOCIO-DEMOGRAPHIC DATA

- Age wise distribution of subjects showed that among 200 patients, 27% of the subjects were in the age group of 41-50 years and 23% of subjects were both in the age group of 31-40 years and 51-60 years.
- Among the 200 subjects studied 54% were males and 46% were females. Regarding occupation majority (53.5%) was unemployed, among 200 subjects 49% of subjects had monthly income between Rs.1000-3000, 37.5% had monthly income below Rs.1000 and 13.5% had monthly income above Rs. 3000.
- Majority (60%) of subjects was moderate workers, 29.5% were sedentary workers and 10.5% were heavy workers. Out of the 200 subjects 67.5% did not have any habits like smoking, alcoholism and chewing.

CLINICAL DATA OF STUDY SUBJECTS

- Regarding valve replacement, 71.5% of subjects had mitral valve replacement, 18% had aortic Valve replacement and 10.5% had both aortic and mitral Valve replacement surgeries. Among the 200 subjects, 43% of subjects had undergone surgery within last 5-10 years, 30% of subjects within 1-5 years and only 5% of subjects were more than 15 years after surgery.
- Majority (82%) of the subjects were taking both Tab. Acitrom, and Tab. Ecospirin as anticoagulants following valve replacement. Distribution of International Normalized Ratio (INR) values showed that 40% of subjects had INR values below normal level, 38.5% had INR values within the normal range and 21.5% had INR levels above the normal range.

IDENTIFICATION OF PROBLEMS OF SUBJECTS AFTER VALVE REPLACEMENT

Physical Problems	Frequency	Percentage
Sleeplessness	121	60.5%
Breathlessness	123	61.5%
Bleeding	51	25.5%
Thrombus embolism	119	59.5%
Valve failure (6%)	12	6%
Valve infections (8%).	16	8%

Table 1: Distribution Of Subjects According To Physical Problems

- Among the 51 subjects with bleeding, 66.7% of subjects had gum bleeding and only 2% had hemoptysis as bleeding manifestations.
- Among the 119 subjects with thromboembolism, 24.5% of subjects had weakness of one side or any part of the body, impaired consciousness, loss of speech and visual disturbances as features of thromboembolism.
- Among the 12 subjects with valve failure, 42% of subjects had chest pain, breathlessness, palpitation and reduced click sound of the valve as features of valve failure.
- Among the 16 subjects with valve failure, 62.5% of subjects had fever, shivering and excessive fatigue as features of valve infection.

Reasons for Sleeplessness	Frequency	Percentage
Breathing difficulty	54	44.6
Pain	46	38.0
Sleep during day time	16	13.2
Click sound of the valve	5	4.2
Total	121	100.0

Table 2: Distribution Of Subjects According To Reasons For Sleeplessness

The above table represents that 44.6% of subjects had breathing difficulty and 38% had pain as reason for sleeplessness.

PSYCHOLOGICAL PROBLEMS

- It is important that 58% had feelings of hopelessness some times, 46.5% had feelings of anger some times, 42% had feelings of dependence some times, 27% were unable to cope with their illness all the time and 21.5% were like to sit alone sometimes after valve replacement surgery.

SOCIAL AND ECONOMICAL PROBLEMS

- The major social problems were 25% and 35% of the subjects were not satisfied with their role in the family and the society respectively. 3.5% had decreased intimacy with family members and 10.5% had decreased intimacy with friends and neighbors. 9% of the subjects were not getting adequate attention from family members, 8.5% of the subjects had the feeling that they were neglected by the family members and 23.5% of the subjects became less interested in attending social gatherings after Valve Replacement surgery.
- It is found that 79% of the subjects after Valve Replacement were suffering from work related problems and 54.4% were unable to do their previous work. Majority 88.5% of the subjects were unable to meet the financial needs for the treatment and only 2% of the subjects were getting grants or aids from the government.

DISCUSSION

The study found out that only 4.2% of the clients were disturbed by the click sound of the valve which was a reason for sleeplessness. The findings was supported by Heinrich Koertke, (2003) observed that 94.2% with mechanical heart valve replacement have no persistent complaints about the valve noise.

The present study found out that out of the 200 subjects studied 59.5% of subjects had thromboembolism, 25.5% had bleeding, 6% had valve failure and 8% had valve infections as major physical problems after Valve Replacement. It was found that thromboembolic and hemorrhagic complications were the most significant problems in subjects treated with oral anticoagulants after implantation of artificial valvular prosthesis of the heart (Wolkann – Bartnik J, 2001).

The present study identified that both 75% and 78.5% had financial problems as reason for irregular follow up and non compliance to drugs, and 79% had work related problems. A study conducted by Shobha A (2008) showed that financial problem was the major reason for irregular follow up and non compliance to drugs and 50% of subjects after valve replacement were suffering from work related problems.

Valve-related complications after heart valve replacement with mechanical valves occur at acceptable rates. The structural dysfunction has been largely overcome; however, prosthetic valve endocarditis may still result in death. Thromboembolic and hemorrhagic events related to anticoagulant therapy should be considered during life-long follow-up. Nonstructural prosthetic valve dysfunctions, such as paravalvular leaks and pannus ingrowth, are also issues that need to be resolved.

REFERENCES

1. Amano J, Kuwano H, Yokomise H. Thoracic and cardiovascular surgery in Japan during 2011. Annual report by The Japanese Association for Thoracic Surgery. *Gen Thorac Cardiovasc Surg.* 2013;61:578–607. doi: 10.1007/s11748-013-0289-2. [PubMed] [CrossRef] [Google Scholar]
2. Taniguchi S, Hashizume K, Ariyoshi T, Hisara Y, Tanigawa K, Miura T, Odate T, Matsukuma S, Nakaji S, Eishi K. Twelve years of experience with the ATS mechanical heart valve prostheses. *Gen Thorac Cardiovasc Surg.* 2012;61:561–568. doi: 10.1007/s11748-012-0124-1. [PubMed] [CrossRef] [Google Scholar]
3. Misawa Y. Heart valve replacement for patients with end-stage renal disease in Japan. *Ann Thorac Cardiovasc Surg.* 2010;16:4–8. [PubMed] [Google Scholar]
4. Misawa Y, Saito T, Konishi H, Ohki S, Kaminishi Y, Sakano Y, Morita H, Aizawa K. Clinical experience with the Bicarbon heart valve prosthesis. *J Cardiothorac Surg.* 2007;25(2):8. doi: 10.1186/1749-8090-2-8. [PMC free article] [PubMed] [CrossRef] [Google Scholar]
5. Misawa Y, Fuse K, Saito T, Konishi H, Oki S. Fourteen year experience of the Omnicarbon prosthetic heart valve. *ASAIO J.* 2001;47:677–683. doi: 10.1097/00002480-200111000-00021. [PubMed] [CrossRef] [Google Scholar]
6. Aoyagi S, Oryoji A, Nishi Y, Tanaka K, Kosuga K, Oishi K. Long-term results of valve replacement with the St. Jude Medical valve. *J Thorac Cardiovasc Surg.* 1994;108:1021–1029. [PubMed] [Google Scholar]
7. Shanmugam G, MacArthur K, Pollock J. Mechanical aortic valve replacement: long-term outcomes in children. *J Heart Valve Dis.* 2005;14:166–171. [PubMed] [Google Scholar]