Suggested Discharge Guidelines for Patients Undergoing Percutaneous Balloon Mitral Valvotomy

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Abstract

Introduction: Mitral stenosis is an obstruction of blood flowing from the left atrium into the left ventricle. Balloon valvuloplasty is an alternative to valve replacement in patients with critical stenosis,it is a procedure that may relieve many of the symptoms of valve disease, but it will not cure valve disease. Some patients may continue to need medications, even after a successful procedure. Patients will need to continue seeing their doctors regularly after the procedure to make sure that cardiac valves are working properly.**Aim:** This study aimed to suggest discharge guidelines for patients undergoing Percutaneous Balloon Mitral Valvotomy. **Methods:** A descriptive explorative design was utilized for the conduction of this study. The study was conducted at the Cardiology Departments and out patients Clinics in Cardio Vascular Hospital, affiliated to Ain Shams University Hospitals. **Sample:** A Purposive sample of 60 adult patients of both gender undergoing percutaneous balloon mitral valvotomy were involved in this study. **Tools:** Three tools were used as follow; **I-** A structured interviewing questionnaire form to assess needs of patients including the following parts: A- Socio-demographic data sheet, and B - Patient's needs assessment sheet. **II-** Patients' medical records **III-** Psychometric assessment includes (Hamilton's anxiety rating scale & Numerical pain scale). **Results:** The majority of the studied patients (90 % & 80% respectively) had unmet physical, social and educational needs, most of them (75%) had unmet psychological needs, and more than half of them had unmet spiritual needs, while post procedure only physical and educational needs were persistent in (70% & 60 %) of them respectively. **Conclusion:** There was a statistical significance relation between patients' needs and their characteristics as regards: age, gender, income, marital status and educational level. **Recommendations:** Further research studies are needed to focus on the assessment of the quality of life of such group of patients.

Key words: Percutaneousballoon mitral valvotomy, Patient's needs assessment.

Introduction

Mitral stenosis is an obstruction of blood flowing from the left atrium into the left ventricle. It is most often caused by rheumatic endocarditis, which progressively thickens the mitral valve leaflets and chordae tendineae, added to the leaflets often fuse together. Eventually, the mitral valve orifice narrows and progressively obstructs blood flow into the ventricle **(Janice & Herry, 2011)**. Mitral stenosis is a progressive disease consisting of a slow, stable course in the early years followed by an accelerated course later in life. Typically, there is a latent period of 20-40 years from the occurrence of rheumatic fever to the onset of symptoms. Once symptoms develop, it is almost a decade before they become disabling**.**

Balloon valvuloplasty is an alternative to valve replacement in patients with critical stenosis although the treatment of choice for valvular heart disease is surgery, This technique enlarges the orifice of a heart valve that has been narrowed by a congenital defect, calcification, rheumatic fever, or aging **(Allen , et al., 2013) .** Balloon valvotomy is a procedure that may relieve many of the symptoms of valve disease, but it will not cure valve disease. Some patients may continue to need medications, even after a successful procedure. Patients will need to continue seeing their doctors regularly after the procedure to make sure that cardiac valves are working properly. Lifestyle factors that can worsen valve disease may also need to be changed. An exercise program may be prescribed to improve health after the procedure **(Sheila, 2011)**.

Percutaneous mitral commissurotomy has demonstrated good immediate and midterm results and has replaced surgical mitral commissurotomy as the preferred treatment of rheumatic mitral stenosis in appropriate candidates **(Ramin, 2014)**. This procedure is performed in a cardiac catheterization laboratory under local anesthesia. The doctor inserts a balloon-tipped catheter through the patient's femoral vein or artery, threads it into the heart, and repeatedly inflates it against the leaflets of the diseased valve. This process increases the size of the orifice, improving valvular function and helping complications from decreased cardiac output. Patients remain in the hospital 24 to 48 hours after the procedure**(Allen, et al., 2013)**

Nurses need to be aware that patients with mitral valve disease desire information about the condition, and not just at the time of diagnosis or development of symptoms **(Claudia, 2014)**. Nurses can provide education and facilitate support. It is important that the patient undergoing Percutaneous Balloon Mitral Valvotomy (PBMV) needs to be assessed to improve both the quality and value of care for them**.** These needs include: physical needs: activities of daily living, physical preparation, general assessment, interventional technique, investigations and treatment, post-procedural pain management, control of nausea and vomiting, postoperative diet, complication management, procedural access site care and self-care post discharge …etc. Psychological needs: reducing anxiety from pain and complications and information about emotional health lifestyle ….etc. Social needs: patient's social activities, work, driving and social support. Also spiritual needs: relation with God and motivation ….etc. **(Adrian&Berg, 2010)**.

The prevalence of rheumatic disease is higher in developing nations than in the United States. In India, for example, the prevalence is approximately 100-150 cases per 100,000, and in Africa the prevalence is 35 cases per 100,000 **(Janice & Herry, 2011)**. In an Egyptian study, the prevalence of Rheumatic Heart Disease (RHD) in the primary school children was 3.4/1000. Approximately 20 million cases of rheumatic fever occur in third world countries annually, with a correspondingly high incidence of advanced mitral stenosis later in life. A genetic predisposition to develop RHD appears to be important in certain countries like India, Egypt and Turkey**(Rashed, 2010)**.

Information is a key factor for optimal management of post-procedural symptoms, so patients should receive consistent information and effective discharge instructions to be prepared for transition of care from hospital to home. An effective practical discharge advice

will increase patients` confidence in managing their care at home, improve health status and make them feel safe and comfortable. It is vital to provide patients with certain guidelines and information about their analgesic regimen, wound care, returning to daily activities and dietary advice….etc. **(Duron & Nicastri, 2011 and Phillips, et al., 2012).**

Significance of the study:

The prevalence of rheumatic disease is higher in developing nations than in the United States. In India, for example, the prevalence is approximately 100-150 cases per 100,000, and in Africa the prevalence is 35 cases per 100,000 ***(Janice & Herry, 2011)***. In an Egyptian study, the prevalence of Rheumatic Heart Disease (RHD) in the primary school children was 3.4/1000. Approximately 20 million cases of rheumatic fever occur in third world countries annually, with a correspondingly high incidence of advanced mitral stenosis later in life.

Aim of the study:

This study aimed to suggest discharge guidelines for patients undergoing Percutaneous Balloon Mitral Valvotomy

Research questions:

What are the health needs of patients undergoing percutaneous balloon mitral valvotomy?

Subjects and Methods:

Research design

A descriptive explorative design was utilized for the conduction of this study.

Setting:

The study was conducted at the Cardiology Departments and out patients Clinics in Cardio Vascular Hospital, affiliated to Ain Shams University Hospitals.

Subjects:

A Purposive sample of 60 adult patients undergoing percutaneous balloon mitral valvotomy within six months (from October 2015 to April 2016) they were selected from the above mentioned setting.

Inclusion criteria:

Adult patients with mitral stenosis undergoing percutaneous balloon mitral valvotomy, with no other co-morbidities (e.g. renal failure, Cancer, Cerebrovascular stroke…etc.)

Tools for data collection

Data were collected using the following 3 tools:

I. A structured interviewing questionnaire form

Developed by the researcher to assess the needs of patients undergoing percutaneous balloon mitral valvotomy in a simple Arabic language including the following parts:

A. Socio-demographic data sheet which included: (age, gender, level of education, marital status, occupation, income, and residence

B. Patient's needs assessment sheets included:

- Physical needs as (resuming activities of daily living, follow prescribed diet,

perform exercises, maintain Hygienic measures, sufficient sleeping hours, and relive fatigue)

- Psychological needs such as (reducing anxiety, sense of safety, coping, fear of complications and fear of loneliness)

- Social needs as (patients' social support, recreation activities, sexual change, work adjustment, need for assistance, financial burden and feeling of usefulness).

- Educational needs such as (definition / causes of mitral stenosis, signs and symptoms of mitral stenosis, management, advantages of balloon valvuplasty, health education and discharge instructions)

- Spiritual needs as (increase satisfaction, inner peace, positive vision of future, and improving spiritual practices).

Scoring system:

Patients' answers were recorded as yes or no.

- Positive items scored as one mark, while negative items scored as zero mark. Positive item means there is a need for the patient to be covered, negative item means there is no needs for such point.

- More than 20%of positive responses for any items should be considered as identified needs for such group of patients.

- For questions used to assess educational needs of the patients, each item one mark for yes means right and acceptable heath information, and zero mark for no means wrong or un-known heath information which is in need to be covered. The satisfactory level = 60 % & more. Meanwhile, unsatisfactory level = less than 60%.

I. Patients' medical records:

usedin identifying, patient physical examination, related past and present history, manifestations, investigations and treatment

II. Psychometric assessment:

It was completed by interviewing of the studied patients to determine their anxiety level and pain level through the following:

1. Hamilton's anxiety rating scale:

It was developed by Hamilton (1959) and modified by the researchers. This scale formed of fourteen variables: anxious mood, tension, insomnia,, cognitive changes, depression, somatic(sensory), cardiovascular, respiration, gastrointestinal, genitourinary, autonomic symptoms, somatic (muscular) and the behavior at the interview.

The total score ranged from 0-42 and according to patients' responses the following classifications were adapted: no anxiety (zero), mild anxiety (0 - less than 25), moderate anxiety (25 - less than 31.5) and severe anxiety (31.5 - 42).

2. Numerical pain scale:

It was developed by **Compbell (1995)** in **Mohassebet al. (2004)**, to measure pain severity. It was consisted of a line divided by numbered points from (0-10). Patients' responses were categorized and adapted as follows: no

pain (zero), mild pain (0 - less than 4), moderate pain (4-less than 7) and severe pain (7 - 10).

2) Operational design:

Study included the preparatory phase, content validity of the developed tool, pilot study and field work.

The Preparatory phase:

It included reviewing of related literature and theoretical knowledge of mitral stenosis and percutaneous balloon mitral valvuplasty from various aspects of the study using books, articles, internet, periodicals and magazines from which data collection tools were developed.

Ethical consideration:

Prior conducting the pilot study, ethical approval was obtained from the Scientific Ethical Committee of Ain Shams University. In addition oral and written informed consent was obtained from each participant prior to data collection. They were assured that anonymity and confidentiality would be guaranteed and the right to withdraw from the study at any time without giving any reason. Ethics, values, culture and beliefs were respected.

Validity and reliability

Validity was test of the proposed tool using face and content validity.

- Face validity aimed at inspecting the items to determine whether on face of it the tool measures what it supposed to measure.

- Content validity was conducted to determine whether the tools covers the aim, test its appropriateness, relevance, correction and clearance through a jury of seven experts from the Medical staff of Cardiology and Medical-Surgical Nursing staff, Ain Shams University. Their opinions were elicited regarding the tools format layout, consistency and scoringsystem.

1- Testing reliabilityof the same tool was done using alpha- cronbach test. (0.863) for the total items alpha-cronbach test foreach of needs were as follows:

  - Physical needs = 0.877
  - Psychological needs = 0.755
  - Social needs = 0.745
  - Spiritual needs = 0.842

  - Educational needs = 0.889

Pilot study:

It was applied on 6 of the studied patients in ratio of 10 % to test the applicability and clarity of the tools, as well as to estimate the time needed to fill in the tools. Necessary modification was done for the used tools and patients included in the pilot study were excluded from the sample group.

Field Work:

Field work included the following:

- Sampling started and completed within six months. Purpose of the study was simply explained to the patients who agreed to participate in the study prior to any data collection.

- Patient interview questionnaire sheet which had been designed to assess patient's needs (physical, psychological, social and spiritual) undergoing percutaneous balloon mitral valvotomy

- The researcher collected data from patients before the procedure and in follow up visit one month after the procedure, 2 days/ per week at the morning and afternoon shifts

- Filling in the tools was done according to the patients' understanding and health condition.

- The patient filled the questionnaire in the presence of the researcher or it was filled by the researcher for illiterate patients.

- Level of pain among the studied patients was assessed

- Patients' medical recordsused to obtain the past and present medical history, treatment …etc.

- Patients` discharge guidelines were developed by the researcher based on deficiency in knowledge and practices of study patients

- The content was written in simple Arabic language and consistent with the related literature. Moreover, met patients' level of understanding.

- The guidelines was presented in theoretical and practical parts

- The theoretical part was covered the following items: wound care , signs and symptoms of wound infection , bathing , medications , follow up visits , return to work , sexual condition , traveling preparations, diet regimen, religious practices, physical activities, follow – up visits, complications and unusual signs of immediate doctor advice.

- The practical part was covered the following items (wound care, hygienic and exercises measures).

Administrative design:

Before starting data collection, an official letter was issued from the faculty of nursing, Ain Shams University to director of cardiothoracic hospital in which the study was conducted to obtain their approval and assistance in conducting the study. Purpose of the study was explained to the head nurse of the departments of the hospital under the study.

Statistical design:

The collected data were organized, categorized, tabulated and Data were analyzed using Statistical Program for Social Science (SPSS) version 20.0. Quantitative data were expressed as mean± standard deviation (SD). Qualitative data were expressed as frequency and percentage.

The following tests were done:

- Chi-square (X^2) test of significance was used in order to compare proportions between two qualitative parameters.

- Probability (P-value):

– P-value $\leq$0.05 was considered significant.
– P-value $\leq$0.001 was considered as highly significant.
– P-value >0.05 was considered insignificant.

Results:

Table (1): shows that the mean age of the study sample was 36.5 ±6.54 ranged from 18 to 55 years, mean weight was 62 ±7.95 ranged from 45 to 80kg and

the mean height was 172.5 ±15.03. Regarding gender and marital status the majority of the study sample was married and females (55.0% & 65.0% respectively). In relation to educational level, nearly one third (35.0%) of them had secondary school education. In relation to job, half (50.0%) of them were not working. Concerning the Income one fifth of them (20.0%) didn't have enough income and (60.0%) were from urban area

Table (2):shows that all of study subjects (100 %) had palpitation, shortening of breath, lower limb edema and fatigue. While the majority had cough, orthopnea and chest pain (95.0%, 90.0% & 90.0% respectively.

Table (3): shows that all of study subjects (100 %) expressed resuming their physical activity and maintaining hygienic measures as a physical demand. While the majority (95% & 90% respectively) had reliving fatigue and following prescribed diet, while (80%) of them had performing exercise as a physical need, and three quadrants of them (75.0%) had sleeping sufficient hours pre-procedure. Post procedure, reliving fatigue still the major physical need in (80 %) of patients, and in (70 %) had following prescribed diet, more than half of them (60 %) expressed resuming activity and maintaining hygiene as a physical need

Table (4): shows that (70 %) of study subjects expressed a sudden chest pain, which lasting more than 30 minutes, While the majority (80 %) of them described it as stabbing pain, and (60%) reported the severity as moderate pain.

Table (5): shows that the majority of the studied population (80 %) had sense of safety and security, while three quadrants (75%) had fear of complications, nearly two thirds (65%) had reducing anxiety and coping, and more than half of them (60.0%) had fear of loneliness as a psychological need. Post procedure (40 %) of patients still facing fear of complications as a psychological need

Table (6): shows that the majority (80%) expressed feeling of usefulness, while (75 %) of them in need to increase social support, nearly two thirds of the studied population had sexual activity change, financial burden and work adjustment (70%, 65 % & 65% respectively), more than half of them (60 % & 55 %) need of increasing recreational activity and assistance respectively. Post procedure more than half of them (55%) still facing sexual activity changes as a major social need, and half of them, expressed feeling of usefulness and need of social support.

Table (7):shows that the majority of the studied population three quadrants (75%) expressed increasing satisfaction, nearly two thirds (70 %) had positive future vision, more than half of them (60.0%) had improving practice, while half of them (50%) had inner peace as a spiritual need. Post procedure the most persistent need in (30 %) of patients was improving spiritual practices

Table (8): shows that as regard patient health information majority of them (95 %) had medically insufficient knowledge about treatment, prescribed diet and life style changes for patients of mitral stenosis, while (90%) of them did not have knowledge about signs and symptoms, advantages of PBMV or prescribed drugs. Causes, complications and follow up in their disease were not known in most of them (85 %). (80 %) of them did not have knowledge about related laboratory investigations, self-care or hygiene and manifestations of

infection. Post procedure Life style changes, following prescribed diet and complications were the most persistent educational needs in (65 % & 60 % respectively) of studied patients.

Table (9): shows that the majority of the studied population (90 % & 80% respectively) had unmet physical, social and educational needs, most of them (75%) had unmet psychological needs, and more than half of them had unmet spiritual needs, while post procedure only physical and educational needs were persistent in (70% & 60 %) of them respectively.

Table (1): Socio-demographic characteristics of the study patients(n= 60).

Items	Number	Range
Age (years)		
<20	6	10
21-30	15	25
31-40	15	25
41-50	18	30
>50	6	10
Mean ± SD	36.5±6.54	
Weight/Kg		
<60	15	25
61-70	21	35
71-80	24	40
Mean ± SD	62.5±7.95	
Height		
<150	6	10
151- 160	24	40
161- 170	24	40
171- 180	6	10
Mean ± SD	172.5±15.03	
Gender		
Male	21	35
Female	39	65
Education		
Illiterate/ Read & write	15	25
Basic	12	20
Secondary	21	35
High	12	20
Marital Status		
Single	15	25
Married	33	55
Widow/er	12	20
Job		
Not working	30	50
Working	30	50
Income		
Not Enough	12	20
Enough	48	80
Residence		
Urban	36	60
Rural	24	40

Table (2): Percentage distribution of studied patients according to their complaints.

Items	Yes (%)	No (%)
Palpitation	60 (100%)	0 (0%)
Shortening of breath	60 (100%)	0 (0%)
Orthopnea	54 (90%)	6 (10%)
Cough	57 (95%)	3 (5%)
Lower limb edema	60 (100%)	0 (0%)
Chest pain	54 (90%)	6 (10%)
Fatigue	60 (100%)	0 (0%)

Table (3): Distribution of studied patients as regards their physical needs.

Items	Patients' needs	
	Before (%)	After (%)
Resume Physical activities	100 %	60 %
Follow prescribed diet	90 %	70 %
Perform exercises	80 %	45 %
Maintain Hygienic measures	100 %	60 %
Sufficient sleeping hours	75 %	45 %
Relive Fatigue	95 %	80 %
Mean ± SD	54.0±6.3	36.0±8.3
t- value	t=12.215; p<0.001 HS	

Table (4): Distribution of studied patients as regards their pain characteristics.

Items	Patient's Number	
	No	%
Onset		
• Gradual	12	20.0
• Sudden	42	70.0
• Continuous	6	10.0
	Mean ±SD = 20±19.3	
Severity		
• Mild	9	15.0
• Moderate	36	60.0
• Severe	15	25.0
	Mean ±SD = 20±14.2	
Duration		
• Less than 15 min	6	10.0
• From 15 -30 min	12	20.0
• 30 min & more	42	70.0
	Mean ±SD = 26.2±17.32	
Pattern		
• Burning	3	5.0
• Tightening	9	15.0
• Stabbing	48	80.0
	Mean ±SD = 24.4±14.2	

Table (5): Distribution of studied patients as regards their psychological needs.

Items	Patients' needs	
	Before (%)	After (%)
Reduce anxiety	65 %	25 %
Sense of safety and security	80 %	30 %
Coping with health conditions	65 %	35 %
Fear of complications	75 %	40 %
Fear of loneliness	60 %	25 %
Mean ± SD	41.4±4.9	18.6±3.9
t- value	t=25.742; p <0.001 HS	

Table (6): Distribution of patients' social needs.

Items	Patients' needs	
	Before (%)	After (%)
Increase social support/ relations	75 %	50 %
Increase recreational activities	60 %	35 %
Sexual activity changes	70 %	55 %
Work adjustment	65 %	40 %
Assistance with traveling and transferring	55 %	15 %
Financial burden	65 %	45 %
Feeling of usefulness	80 %	50 %
Mean ± SD	40.3±5.2	24.9±8.1
t- value	t=11.313; p <0.001 HS	

Table (7): Distribution of studied patients as regards their spiritual needs.

Items	Patients' needs	
	Before (%)	After (%)
Increase satisfaction	75 %	25 %
Improving spiritual practices	60 %	30 %
Positive vision for the future	70 %	20 %
Sense of inner peace	50 %	10 %
Mean ± SD	38.3±6.7	12.8±5.1
t- value	t=21.414; p <0.001 HS	

Table (8): Distribution of studied patients as regards their educational needs.

Items	Patients' needs	
	Before (%)	**After (%)**
Definition / Causes of mitral stenosis	85 %	40 %
Signs & symptoms of mitral stenosis	90 %	45 %
Treatment of mitral stenosis	95 %	40 %
Advantages of percutaneous valvotomy	90 %	20 %
Health information about		
• Complications	85 %	60 %
• Diet	95 %	60 %
• Laboratory tests	80 %	40 %
• Self - care and hygiene	80 %	45 %
• Infection control	75 %	30 %
Discharge instructions		
• Wound care	75 %	30 %
• S and S of infection	80 %	40 %
• Follow up	85 %	45 %
• Drugs	90 %	50 %
• Life style change	95 %	65 %
Mean ± SD	51.4±4.2	26.1±7.5
t- value	t=20.812; p <0.001 HS	

Table (9): Distribution of studied patients as regards their needs

Items	Patients' needs	
	Before (%)	**After (%)**
Physical	90 %	70 %
Psychological	75 %	35 %
Social	80 %	30 %
Spiritual	65 %	25 %
Educational	80 %	60 %
Mean ± SD	46.8±5.4	26.4±11.9
t- value	t=11.038; p <0.001 HS	

Discussion

Over recent decades the treatment of patients with symptomatic mitral stenosis, percutaneous balloon mitral valvotomy (PBMV) has been established as an alternative to surgical mitral commissurotomy. An important change was needed regarding patient care plans, so patient assessment provides the foundation to determine the plan of care. Comprehensive assessment involves a combination of subjective and objective observations and measurements to identify the physiological, psychological, social and spiritual needs of the patients **(Walker, 2007).**

This study was carried out in order to assess the needs of the patients undergoing percutaneous balloon mitral valvotomy (PBMV).In the present study, findings regarding to patients' characteristics revealed that, mean age of the studied patients was 36.5 ±6.54, this finding was supported by **Khashaba et al. (2009)** who find that, the mean age of patients undergoing percutaneous balloon mitral valvotomy (PBMV)(age 39 ± 8 years)**.**

On the same context, results revealed that the mean weight was 62 ±7.95 and the mean height was 172.5 ±15.03. These findings were supported by **Krishna, et al. (2012)** who reported that, mean weight of the patients was 74.18 ± 18.23 and height was 165.8±7.41. As regards the gender, most of the study sample (65%) was females. This result comes in agreement with **Claudia (2014)** who found that, female patients were most of the study subjects.

In relation to educational level, nearly one third of studied patients (35.0%)had secondary school education this finding was contrary with **Nobuyoshi** (**2007)** who found that, more than fourth of the study subjects had high school level of education. On the same line, concerning the marital status, majority of studied patients were married. This was supported by **Claudia (2014)** who found that, more than two thirds of the study subjects were married. In relation to job, half of the patients were not working, this finding was contrary with **Krishna, et al. (2012)** who found that the majority of the study subjects were working**.**

Regarding distribution of the studied patients according to their complaints, finding of the study showed that all of them had palpitation, shortening of breath and fatigue, while the majority had cough, orthopnea and chest pain. This was supported by **Khashaba, et al. (2009)**who reported that the common symptoms of the study subjects were palpitation, shortening of breath and fatigue and two thirds of them had orthopnea and cough. Also **Feldman (2009)** stated that, depending on the patient own comments mentioned that after one weeks from procedure, they still have palpitation attacks, dyspnea or cough.

Concerning patients' physical needs as regards ADLs, study found that all of patient had a pre-procedure need of resuming their physical activity, while the majority (95% & 90% respectively) had reliving fatigue and following prescribed diet, in post procedure assessment, reliving fatigue still the major physical need in (80 %) of patients, and in (70 %) had following prescribed diet, more than half of them (60 %) expressed resuming activity. This finding was not supported by **van Bemmel (2010)** who found that the majority of patients did not experience limitation of their daily activities, more than half of them expressed that need to relief fatigue did not prevent daily activities before the procedure, and that full recovery of daily physical activity needed less than two weeks in most patients undergoing PBMV.

This study revealed that (70 %) of study subjects expressed a sudden chest pain, which lasting more than 30 minutes, While the majority (80 %) of them described it as stabbing pain, and (60%) reported the severity as moderate pain. This was supported by **Krishna, et al. (2012)** who stated that moderate stabbing pain was described by majority of patients as recurrent chest pain.

On the light of the present study finding showed that the major patients' psychological needs before the procedure were as follows; (80 %) had sense of safety and security, while three quadrants (75%) had fear of complications, nearly two thirds (65%) had reducing anxiety and coping. Post procedure only (40 %) of patients still facing fear of complications. This finding was in accordance with **Mick (2013)** who stated that, nearly all of subjects expressed fear of potential complications pre-procedure and less than half of them reported fear of complication even after a successful

procedure, while anxiety was reported in more than two thirds of patients.

In relation to patients' social needs before the procedure, finding revealed that the majority (80%) expressed feeling of usefulness, while (75 %) of them in need to increase social support, nearly two thirds of the studied population had sexual activity change Post procedure more than half of them (55%) still facing sexual activity changes as a major social need, and half of them, expressed feeling of usefulness and need of social support. In contrary with **Mansfieldet al.** (**2011)** who found that, the majority of the study subjects expressed a need of enhancing and continuing their sexual potency which continued to be a major need during recovery, and caring of their families came later in more than three quadrants of patients pre-procedure, but a noticeable reduction was confirmed post procedure.

Considering spiritual needs before the procedure, study revealed that the majority of the studied population, three quadrants (75%) expressed increasing satisfaction and nearly two thirds (70 %) had positive future vision as a need. Post procedure the most persistent need in (30 %) of patients was improving spiritual practices. This finding was supported by **Nobuyoshi** (**2007)** who recognized that the majority of study subjects had low satisfaction, and loss of expectation to the future concerns, while there was a remarkable improvement after a successful interventional procedure.

As regards educational needs before the procedure, study showed that the majority of studied population (95 %) had medically insufficient knowledge about treatment, prescribed diet and life style changes for patients of mitral stenosis, while (90%) of them did not have knowledge about signs and symptoms, advantages of the procedure or prescribed drugs. Causes, complications and follow up in their disease were not known in most of them (85 %). Most of patients (80 %) did not have knowledge about related laboratory investigations, self-care or hygiene and manifestations of infection. Post procedure, life style changes, following prescribed diet and complications were the most persistent educational needs in (65 % & 60 % respectively) of studied patients. These findings were not supported by **Celement (2011**) who stated that, nearly two thirds (65 %) of the patients had sufficient pre-procedure knowledge in the fields of dietary guidance, prevention of infection, and treatment methods, while the knowledge regarding percutaneous balloon mitral valvuplasty, its results, and probable complications, were insufficient in more than half of patients, which showed a great increase in post procedure information. Also **Feldman (2009)** stated that, patients required additional information about post procedure expectations, follow up, and drug management. In addition **Mansfield, et al. (2011**) found that patients felt dissatisfied because of inadequate advice given regarding hygiene. Moreover, significant number of participant patients did not have knowledge on post procedure precautions, hospitalization period, infection and discharge instructions, concluded that in facing this problem, patients should be provided with better instructions before the procedure.

Conclusion

Based on the findings of the present study, it can be concluded that:

Overall the study has indicated that, the majority of the studied patients had Physical, Psychological, Social, Spiritual and educational needs before the

procedure. In addition, the highest needs before the procedure were, physical followed by, educational spiritual and social and then later psychological. Meanwhile, there was a statistical significance relation between patients' needs and their characteristics as regards: age, gender, income, marital status and educational level.

Recommendations

The following recommendations were inferred from the study:

- An orientation program should be prepared for patients undergoing percutaneous balloon mitral valvuplasty (PBMV).
- Patients are in need to a simplified illustrated and comprehensive Arabic booklet including information about percutaneous balloon mitral valvuplasty (PBMV).
- Continuous assessment of the needs of the patients undergoing percutaneous balloon mitral valvuplasty (PBMV) is highly recommended.
- Further research studies are needed to focus on the assessment of the quality of life of such group of patients.

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