Effect of Implementing a Nursing Discharge Plan on Quality Of Life of Geriatric Patients with Acute Myocardial Infarction

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Abstract
Background: *Acute myocardial infarction (AMI) is one of the five main acute coronary syndromes and in particular is a dangerous presentation of coronary artery disease worldwide. Geriatric patients with acute myocardial infarction need continuity of care after discharge from hospital. The discharge plan is viewed as the main method for ensuring that geriatric patient's needs post discharge will be met to enable them to function at optimal levels once they return home.*
Aim: *Determine the effect of implementing a nursing discharge plan on quality of life of geriatric patients with acute myocardial infarction.*
Design: *Quasi-experimental research design was used.*
Settings: *The study was carried out at the intensive care unit and intermediate unit of cardiology department of Mansoura University Specialized Medical Hospital.*
Subjects: *The study subjects included 86 geriatric patients with AMI. The study subjects were randomly selected and divided into two groups 43 subject in each, one study and one control group.*
Tools: *Data was collected using 3 tools, socio-demographic and clinical data of geriatric patients with AMI structured interview schedule, Short Form-36 Health Survey Questionnaire and AMI geriatric patients' knowledge and practices structured interview schedule.*
Results: *The study group mean age was 68.19±6.96 years and a mean age of 67.16 ±5.05 years for those in the control group. The total mean scores for quality of life, knowledge and practice scores were improved significantly in the study group (P= 0.000) after implementation of the nursing discharge plan.*
Conclusion: *Geriatric patients with acute myocardial infarction who exposed to the nursing discharge plan showed an improvement in their quality of life, knowledge and practices scores, decrease number of hospital readmission and death rate than those who were exposed to the routine hospital care only.*
Recommendation: *Give a booklet on discharge for AMI geriatric patients for daily self-management measures to improve their health status and avoid any complication.*
Keywords: *Acute myocardial infarction, discharge plan, geriatric patients, quality of life.*

I. Introduction

Coronary heart disease (CHD) is the main cause of death worldwide. It is also a major factor of medical care costs, economic costs and disability especially in older people. Acute myocardial infarction (AMI) is a dangerous presentation of coronary artery disease (CAD)[1,2]. The incidence of MI increases with age; however, the actual incidence depends on the predisposing risk factors for atherosclerosis[3]. MI is a common presentation of ischemic heart disease /coronary artery disease and is the main cause of death with a hospital mortality of 6–13%. Overall mortality including death outside hospital has been estimated to be 30–40%. Moreover, it is associated significantly with higher mortality in elderly compared with the young[4,5].

Aged patients with AMI have a high prevalence of co-morbidity associated with poor quality of life and incremented risk for adverse outcomes. These patients are often destitute the best home care, which may result in subsequent readmissions, which considered the most stressful event facing elderly people[6]. It may also lead to decline in health, social isolation and loss of independence. Beside high mortality and co morbidity, this disease can cause high burden on the caregivers. For this reason, caring approach of geriatric patients should cover different aspects of their lives[7]. It has been suggested that different treatments may affect quality of life (QOL) of patients with AMI. Health-related quality of life is an important measure of patient's recovery after an illness[8]. It causes decline in social, physical and psychological functionality of affected patients. These changes in QOL can impair the patient's ability to perform even basic daily tasks. Thus, how survivors experience their QOL is now being given increasing attention. Therefore, discharge planning is the key component in the continuity of care[9,10].

Discharge planning is a multidisciplinary and methodical process by which the goal of continuity of care is accomplished to meet the post-hospital needs of patients. The process of discharge planning started with admission and ended when the patient discharge from the hospital[11]. It involves assessment of continuing healthcare needs outside the hospital and working with geriatric patients and their families to incubate actual plan to implement after discharge. Discharge planning alternate around the smooth transfer of geriatric patients from one care setting to another. Thus, it may be recognized as a process within a patient's hospital stay integrating a number of specific activities. Geriatric patients complain from a diversity of problems after discharge. These problems contain inability to carry out personal care activities, housekeeping, decreased mobility and difficulty in follow prescriptions[12]. Moreover, discharge-planning post MI may involve disease process explanation, discharge medicines counseling, a list of medicines, chest pain action plan, risk factor modification counseling, smoke cessation counseling, cardiac rehabilitation referral, and arranging follow-up appointments[13].

The essential elements for discharge planning includes communication, coordination, education, patient participation and collaboration between health care personnel as key concepts for successful discharge[11]. The role of the gerontological nurse in this educational process is essential because achieving a good level of adherence is a major task of health care provider. Planning for discharge will increase amelioration rates, avail the patient to reach their best level, lower hospitalization period, and meet patient needs. Therefore, the gerontological nurse should acknowledge the significance of their role in providing continuity of care during the discharge planning process.

Aim of the study:
The aim of the present study was to determine the effect of a nursing discharge plan on quality of life of geriatric patients with acute myocardial infarction.

Research hypotheses:
1. Geriatric patients who will be exposed to the nursing discharge plan will have a higher knowledge score after the intervention.
2. Geriatric patients who will be exposed to the nursing discharge plan will have a higher practices score after the intervention.
3.   Geriatric patients who will be exposed to the nursing discharge plan will have a higher quality of life score after the intervention.

II.   Materials And Method

Materials
Study design: A Quasi- Experimental research design was used in this study.

Setting: The study was carried out at the intensive care unit and intermediate unit of cardiology department of Mansoura University Specialized Medical Hospital.

Subjects: The sample size was calculated using SPSS sample calculator with the following parameters: Alpha error= 0.01, Beta error= 0.1, the first proportion 40% and the second proportion 80%. Based on these parameters the required sample size in the proposed study was 86 patients. The study subjects were randomly and alternatively divided into two groups 43 subject in each, one study and one control group. The control group received the usual hospital care, while the study group received the nursing discharge plan beside the usual hospital care. The study subjects fulfilled the following criteria: age 60 years and above, diagnosed with acute MI, clinically stable, able to communicate and accept to participate in the study.

Tools: Three tools were used to collect the necessary data

Tool I: Socio-demographic and clinical data of geriatric patients with AMI structured interview schedule
This tool was developed by the researcher. It included data such as age, marital status and residence. Clinical data included the present complaints, past medical history, family history, medication used, and the risk behaviors as smoking and caffeine consumption.

Tool II: - Short Form-36 Health Survey Questionnaire (SF-36)
The Short Form-36 Health Survey was developed by Ware and Sherbourne (1992)[14]. The SF-36 Health Survey is a generic outcome measure designed to examine a person's perceived health status and has proven to be useful in assessing health-related quality of life in myocardial infarction patients[7]. It includes one multi-item scale that measures eight domains of health: physical functioning, role limitations due to physical health, bodily pain, general health perceptions, vitality, social functioning, role limitations due to emotional problems and

mental health. The SF-36 can also be divided into two aggregate summary that measures the physical component summary (PCS) and the mental health component summary (MCS). All scores are transformed into a 0-100 scale on the assumption that each question carries equal weight with 100 representing the highest level of functioning possible.

Tool III: AMI geriatric patients' knowledge and practices structured interview schedule

This tool was developed by the researchers after reviewing of the relevant literature. It was used to assess the knowledge of the study subjects before and after the implementation of the discharge plan. A jury member in the related fields approved it to be valid. It includes questions about nature of the disease, medications, healthy diet and lifestyle patterns such as weight control, cessation of smoking, stress management and exercise. The total numbers of questions are 36, for each question several correct answers are allotted, the number of correct answers ranges from one to ten and each correct answer is allotted one grade with the total grade for all questions ranges from one to ten. Each wrong answer to the same question takes a score of zero (0) grade and the same for an answer did not know. The scores for geriatric patients' knowledge and practices were depending on the numbers of grades the patients obtained regarding all questions. The total grade was computed out of 134 grades. The higher score indicate a greater level of knowledge and practices.

Method

1. Permission to carry out the study was obtained from the responsible authorities of the intensive care unit and the intermediate unit of the Cardiology Department of the Specialized Medical Hospital in Mansoura.
2. Tool I and tool III were developed by the researcher after reviewing up to date literature.
3. Tool II (Short Form-36 Health Survey Questionnaire) was translated into Arabic and tested for its content validity and reliability using test-retest method. The reliability was assured by means of spearman's correlation coefficient (r= 0.86).
4. Study tools I, II and III were revised by jury to ensure the content validity. The jury consisted of 7 experts in the field of gerontological, community health, medical-surgical and critical care nursing at faculty of nursing in Alexandria and Mansoura university and suggestions of the jury members were followed and the tools were modified as indicated.
5. A pilot study was conducted on 10 AMI geriatric patients from the Intensive Care Unit and the Intermediate Unit at Cardiology Department in order to evaluate the clarity and applicability of the tools. Accordingly the necessary modifications were done. These patients were excluded from the study sample.
6. The proposed study intervention (discharge plan) were developed by the researcher after reviewing relevant literature. The proposed study interventions included knowledge and practices required for maintain health of AMI geriatric patients, it covered items related to cardiovascular system and AMI nature, risk factors, complications, proper use and importance of compliance with medications and precautions. Behavior and lifestyle modification as proper nutrition, weight reduction, healthy sleep, smoking cessation, compliance with treatment regimen for hypertension and diabetes, exercise and its benefits, measures to reduce stress and periodic medical follow up. Written in a simple Arabic language with colored pictures and large sized font to accommodate age-related visual changes to enhance the learning process.
7. The researcher used to meet the geriatric patients included in the study settings following a certain schedule.
8. Each study subject in both the control and the study groups was interviewed individually by the researcher at the hospital unit before applying the planned discharge plan to collect the baseline patient's data using all study tools starting from10 am to 2 pm. The researcher used to introduce herself and explain the purpose of the study. The researcher assessed each study subjects using study tool I, II and III (pre-test). The necessary information took nearly 20-30 minute.
9. The developed discharge plan was implemented for the study group individually. It was conducted in 4 sessions (3 sessions for knowledge and 1 session for practice) over 3-6 consecutive days. Each session took about 30 minutes approximately (according to the activities required in each session to be achieved and attention span of the patients).
10. The researcher implemented the components of each session in the presence of one of the patient's family member or caregiver to supervise and remember the elderly after discharge from the hospital.
11. Teaching methods included lectures, demonstration, role playing and discussion. Teaching materials included power point presentation using lab top, illustrated picture, videos and the intervention booklet (discharge plan handout) was given to each patient in the study group to attract attention, motivate him and help for reviewing at home, support teaching and applying at home after discharge.
12. Before the start of each session, geriatric patients were asked questions related to the topics discussed in the previous session to identify their understanding; missed or unclear points were re-emphasized by the

researcher. Then a summary of the previous sessions was started to help geriatric patients to refresh their information.

13. The researcher follow the teaching strategies for geriatric by using simple, brief and clear language in the presentation, large printed materials and at the end of each session a brief summary about the important points was given to the patients.

14. The researcher makes a follow up visits daily during patients' hospitalization and regular telephone calls for geriatric patients in the study group were provided twice a week for two months after implementation of the discharge plan to be sure that the instructions were followed correctly and to check their adherence with the discharge plan.

15. Reassessment of each study subjects was done three times to evaluate the effect of the proposed implemented nursing discharge plan. This was done immediately after the implementation of the interventions using study tool III, then the second reassessment was done after 2 months followed by the third assessment after 4 months using the study tool II to assess their QOL.

16. After one year from hospital discharge and implementing the nursing discharge plan, the study subjects were reevaluated by telephone call to determine the effect of implemented discharge plan on number of readmission and deaths as a late follow up.

17. Data collection covered a period of 12 months started from 1 April 2012 to the end of March 2013.

Ethical considerations:

Ethical approval was obtained from the research ethics committee of Faculty of Nursing Mansoura University. Verbal consent was obtained from the study subjects after explanation of the purpose of the study. Anonymity and privacy of the study subjects and confidentiality of the collected data were maintained. The right to withdraw at any time was assured.

Statistical analysis:

Data was analyzed using PC with statistical package for social science (SPSS) version 16. The 0.05 and 0.01 levels was used as the cut off value for statistical significance and the following statistical measures were used; descriptive statistics (Count, percentage, mean, & SD) and analytical statistics (Chi square (χ2), student t-test, paired sample t-test and Spearman's correlation coefficient).

III. Results

Table 1 shows that, The age of the study subjects ranged from 60 to more than 75 years, with a mean age of 68.19± 6.96 years for the study group and a mean age of 67.16 ± 5.05 years for those in the control group. No statistical significant differences were detected between both groups regarding their age (P= 0.559). Males constituted 55.8% of the study group and 58.1 % of the control group, with no significant differences between both groups (P= 0.828). 55.8 % of the study group and 62.8% of the control group were widowed with no significant differences between the two groups regarding marital status (P= 0.056). The majority of the subjects in the study and control groups (93.1% and 83.7% respectively) live with their families with a statistical significant differences between both groups (P= 0.002). There was no statistical significant differences regarding the level of education (P= 0.236), where illiteracy was prevailing among 67.4% and 55.8% of the study and control groups respectively. No statistical significant differences found regarding work between the two groups (P= 0.698). The monthly income reported by the study and control groups was enough with no significant differences were detected (P= 0.026). Pension was the main source of income with no significant differences were detected (P= 0.574).

Table 2 shows that, more than half of the study and control group (51.2% and 62.8 % for each respectively) complain from MI since 1 to less than 5 years, while 39.5% of study group and 32.6% of the control group since 5 to less than 10 years and no statistically significant differences found between the both groups (P=0.480). In relation to family history, 34.9% of study group and 30.2% of control group had positive family history to MI. In relation to smoking, it appears that 44.2% of study group and 51.2% of control group never smoked. On the other hand, 25.6% and 32.6% of study and control group respectively were current smokers and 79.1% of study group and 72.1% of the control group was exposed to passive smoking. Hypertension was the most common co morbidity which also considered the common risk factor for MI among the study and control group (83.7% and 79.1% respectively), diabetes mellitus (60.5%) of study group and (53.9%) of control group, and hyperlipidemia (53.5%) of study group and (55.8%) of control group. Musculoskeletal problems such as osteoarthritis amounted to 25.6% and 18.6% of study and control groups respectively. COPD amounted to 11.6% and 9.3% of test and control groups respectively. Liver diseases had compensated by 9.3% and 20.9% of study and control groups respectively. No significant differences between two the two groups detected regarding predisposing factors and co morbidity to MI.

Table (1): Socio-demographic characteristics of the study subjects in both groups

Items	Control group		Study group		P -value
	N= 43	%	N= 43	%	
Age (in years):					
60-	38	88.3	35	81.4	0.559
75+	5	11.7	8	18.6	
Mean ± SD	67.16± 5.05		68.19± 6.96		
Sex:					
Male	25	58.1	24	55.8	0.828
Female	18	41.9	19	44.2	
Marital status:					
Widow	27	62.8	24	55.8	
Married	12	27.9	19	44.2	0.056
Divorced	4	9.3	0	0.0	
Living condition:					
With family	36	83.7	40	93.1	0.002*
Alone	7	16.3	3	6.9	
Educational level:					
Illiterate	31	72.1	29	67.4	
Read and write	8	18.6	10	23.3	0.698
Primary& Secondary education	4	9.3	4	9.3	
Occupation before retirement:					
Working	23	53.5	20	46.5	0.510
Not working	20	46.5	23	53.5	
Monthly income:					
Enough	22	51.2	32	74.4	0.026*
Not enough	21	48.8	11	25.6	
Source of income:					
Pension	25	58.1	23	53.5	
Family	7	16.3	12	27.9	0.574
Social affairs	6	13.9	5	11.7	
Owner	5	11.7	3	6.9	

Significant at P≤ 0.05

Table (2): Risk factors and co morbidity to MI among the study subjects in both groups

Items	Control group		Study group		P- value
	N= 43	%	N= 43	%	
Duration of disease:					
1 < 5 years	27	62.8	22	51.2	
5 < 10 years	14	32.5	17	39.5	0.480
10 years and more	2	4.7	4	9.3	
Family history of MI:					
Yes	13	30.2	15	34.9	0.645
No	30	69.8	28	65.1	
Smoking:					
Not smoker	22	51.2	19	44.2	
Passive& active smoker	14	32.5	11	25.6	0.497
Ex smoker	7	16.3	13	30.2	
Hypertension:					
Yes	34	79.1	36	83.7	0.514
No	9	20.9	7	16.3	
Diabetes Mellitus:					
Yes	23	53.5	6	60.5	0.631
No	20	46.5	17	39.5	
Hyperlipidemia:					
Yes	24	55.8	23	53.5	0.829
No	19	44.2	20	46.5	
Musculoskeletal problems:					
Yes	8	18.6	11	25.6	0.436
No	35	81.4	32	74.4	
Chronic obstructive pulmonary disease:					
Yes	4	9.3	5	11.6	0.527
No	39	90.7	38	88.4	
Liver disease:					
Yes	9	20.9	4	9.3	0.132
No	34	79.1	39	90.7	

Significant at P≤ 0.05

Table 3 reveals that, the total score for QOL domains were improved significantly in the study group at 2 and 4 months post sessions (P= 0.000). While, patients in the control group reported lower mean total score of QOL and a statistical significant difference was found on post 2 (4 months post sessions) (P=0.000).

Table 4 shows that, the total score of knowledge of the study group differed significantly after implementation of the nursing discharge plan sessions (P=0.000). Moreover, the total knowledge score of the control group was slightly decreased but the difference was not statistically significant. The table also clarifies that, there were significant differences between scores of the study group before and after applying sessions in relation to the total practice score (walking exercise) (P=0.000).

Table 5 shows that, the total knowledge and practice scores of the study group correlated significantly and positively to quality of life score at both evaluation (2 and 4 months after implementation of the nursing discharge plan) (P=0.000).

Table (3): Quality of life of the study subjects before and after implementation of the nursing discharge plan

Quality of life (SF-36)	Control group (Mean±SD)	Study group (Mean±SD)	$(P)^a$, $(P)^b$, $(P)^c$
Physical health total score:			
On admission	13.24±7.28	12.71±7.25	0.732
Post 1	15.12±7.22	26.61±12.29	0.000*
Post 2	9.71±5.52	38.15±13.34	0.000*
Mental health total score:			
On admission	24.79±5.02	25.09±5.99	0.801
Post 1	21.09±6.05	39.51±14.74	0.000*
Post 2	15.49±1.64	43.86±14.87	0.000*
Total quality of life score			
On admission	19.02±4.71	18.89±5.74	0.917
Post 1	18.10±5.69	33.06±12.93	0.000*
Post 2	12.59±3.15	41.01±13.62	0.000*
$(P)^1$	0.096	0.000*	
$(P)^2$	0.000*	0.000*	

Paired sample t-test $(P)^1$: comparing groups on admission and after 2 months (post 1)
Paired sample t-test $(P)^2$: comparing groups on admission and after 4 months(post 2)
Student t-test $(P)^a$: comparing study and control groups on admission
Student t-test $(P)^b$: comparing study and control groups 2 months post-sessions (Post 1)
Student t-test $(P)^c$: comparing study and control groups 4 months post-sessions (Post 2)
Significant at P≤ 0.05

Table (4): The total mean score of knowledge and practices of the study subjects before and after implementation of the discharge plan

Item	Control group (Mean±SD)	Study group (Mean±SD)	t-test $(P)^a$, t-test $(P)^b$
Total knowledge score			
On admission	22.74 ± 16.09	24.35 ±12.09	0.523 (0.602)
On discharge	22.39 ± 16.90	65.79 ± 19.70	11.01 (0.000)*
t-test $(p)^1$	0.37 (0.717)	13.44 (0.000)*	
Total practice score (walking exercise)			
On admission	0.28 ± 0.881	0.21 ± 0.77	0.39 (0.967))
Post 1	0.63 ± 1.234	2.93 ± 1.39	8.13 (0.000)*
t-test $(p)^1$	2.35 (0.024)*	16.274 (0.000)*	

Paired sample t-test $(P)^1$: comparing parameters on admission and on discharge in each group
Student t-test $(P)^a$: comparing parameters among study and control group on admission
Student t-test $(P)^b$: comparing parameters among study and control group on discharge
Significant at P≤ 0.05

Table (5): Correlation between QOL and total knowledge and practice score among the study group

| Correlation	On admission		2 months after discharge		4 months after discharge	
	r	p	r	p	r	p
QOL and total knowledge score	0.223	0.039	0.776	0.000**	0.852	0.000**
QOL and total practice score	0.156	0.153	0.667	0.000**	0.731	0.000**

**Correlation is significant at the level P≤ 0.01

Table 6 clarified that, a significant correlations between the total knowledge score, QOL and number of hospital readmission in the study group in both evaluation (4 months and one-year post discharge) (P=0.000). Moreover, the total practice score was correlated significantly with the number of patients readmission in the study group in both evaluation (P=0.010 and P=0.000 respectively). No significant correlations were noticed between the total QOL score and number of patients' deaths in the study group at one-year post discharge (P=0.026). Concerning number of deaths at one-year post implementation of the nursing discharge plan sessions, it was observed that, there was a significant and negative correlation between total practice score and number of deaths (P=0.001). While, no significant correlation found between total knowledge score and number of patients' deaths (P=0.260).

Table (6): Correlation between the study variables after implementation of the discharge plan among the study group

| Correlation	4 months after discharge		1 year after discharge	
	r	p	r	p
QOL and number of readmission	0.791	0.000**	0.813	0.000**
QOL and number of deaths	0.323	0.002**	0.241	0.026
Total knowledge score and number of readmission	0.601	0.000**	0.613	0.000**
Total practice score and number of readmission	0.390	0.010**	0.686	0.000**
Total knowledge score and number of deaths	-	-	0.176	0.260
Total practice score and number of deaths	-	-	0.472	0.001**

**Correlation is significant at the level P≤ 0.01

Figure 1 represents the frequency of hospital admissions during the year prior study, the table shows that, all of study and control group were admitted to hospital during the year prior to start study. Moreover, all subjects of the control group were admitted to hospital during the first year after discharge and 69.8% of study group admitted to the hospital. A statistical significant differences was detected between the two groups (P= 0.000).
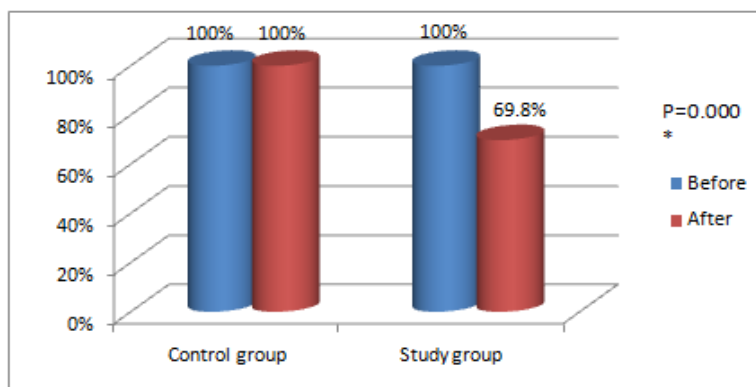
Figure (1): Admission rate among the study subjects before and after implementation of the discharge plan

Figure 2 shows the frequency of deaths during the year following discharge. 14.0% of the control group and 4.7% of the study group were died with no statistical significant differences detected between the two groups (P= 0.138).
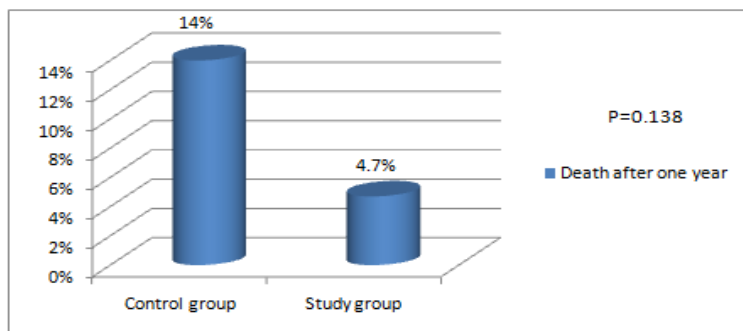
Figure (2): Death rate among the study subjects after one year of the discharge plan implementation

IV. Discussion

Acute myocardial infarction is a life threatening condition. It often causes distress with consequent psychosocial changes and impairment in quality of life for the patients and their relatives[15,16]. Geriatric patients discharged with unmet needs are at higher risk for post hospital complications, readmission and decreased satisfaction with care. The discharge plan was designed specifically for geriatric patients and implemented by gerontological nurse specialist to improve the outcomes and promote continuity of care after discharge from the hospital. Therefore, the aim of the present study was to determine the effect of implementing a nursing discharge plan on quality of life of geriatric patients with acute myocardial infarction.

Regarding age, the majority of subjects in both the study and control groups are young old and more than half are males with no statistically significant difference between both groups. This result approved the fact mentioned in literature that age and male genders are the main risk factors for development of coronary artery diseases[17-20]. Also, this result may be contributed to the effect of estrogen as a protective hormone against development of atherosclerosis among women. Similar supporting studies for this result were conducted in USA by Hager (2010)[11] and Egypt by Abdelhameed et al (2013)[21]. In respect to educational level, more than two thirds of the subjects in the study and control groups are illiterate with no statistically significant difference between both groups. This may be explained by the high prevalence of illiteracy in Egypt. This is in agreement with a study done in Egypt by Shebl et al (2014)[22]. The present study revealed that the majority of the subjects in the study and control groups live with their family in the same house with no statistically significance difference between both groups. This reflect the concept of extended family which still present in Egypt especially in the rural areas. A higher prevalence of chronic diseases including AMI was reported in rural areas, in part, to a population that is older, poorer, and less educated[23]. This is in accordance with results of study done in Egypt by Salama et al (2012)[24].

Hypertension is a well-known risk factor for myocardial infarction and cardiovascular death[7,25]. In patients with AMI, the prevalence of antecedent hypertension varies from 31 to 59%[3,23]. Among the risk factors evaluation, hypertension was the commonest risk factor seen in elderly with AMI in the present study followed by diabetes mellitus. On the same line studies conducted in Japan by Shiraki et al (2011)[27], Italy by Pedrinelli et al (2012)[28] and in USA by Bhatia et al (2013)[29] who reported that, hypertension is a frequent finding in patients with AMI. Regarding smoking the present study revealed that more than quarter of the study subjects in the study and control groups is smokers with no statistically significant difference in both groups. Smoking is considered one of the most probable risk factors for the majority of MI events as it causes vasoconstriction and reduces myocardial oxygen supply. This in accordance with the result of Angerud et al (2013)[17] study in Sweden, while the study done in Egypt by Abdelhameed A (2013)[18] revealed that about three fourth of the study subjects were smokers.

Concerning the knowledge and practices (performance of walking exercise) of the study subjects, the current study results delineated a higher statistically significant difference between geriatric patients' knowledge and practices scores pre and post implementation of the nursing discharge plan sessions, indicating higher total mean post knowledge and practices scores among the study group. Also, a statistically significance difference was found between the study and control group post implementation of the nursing discharge plan. The improvement occurs in the knowledge and practices scores might be related to the effect of knowledge, instructions and the educational booklet given to the patients. Also, the study subjects willingness and intension to have better life and good health by adherence to the discharge plan instructions may played a role. This reflects the importance of nurses' role in providing health education for MI geriatric patients at discharge. On the same line a study done in Egypt by El Hadary (2009)[30].

Regarding quality of life, the present study shows that the total QOL mean score improved significantly at 2 and 4 months evaluation after implementing the nursing discharge plan among the study group. While the subjects in the control group had a lower mean total QOL score in all evaluation (evaluation at 2 and 4 months) and the difference was statistically significant at post 2. The difference between both groups was statistically significance in all evaluations. The improvement in the QOL of the study subjects may be contributed to compliance to the discharge plan, the treatment regimen and the continuous follow up by the researcher. This result is in harmony with those of Radzewitz et al (2002)[31] in Germany who reported that quality of life improved significantly in nearly all domains. In this study, both total knowledge and practice score of the study group correlated significantly and positively to all dimensions of quality of life at both evaluation times. These finding supported studies done by Babu et al (2011)[32] in India and Antonakoudis et al (2006)[33] in Greece.

Focusing attention on the problem of readmission and supporting interventions to reduce these events have the potential to improve the quality and outcomes of care for AMI patients[34]. The present study revealed that there was a statistically significant difference at 4 months and 1-year evaluation post discharge from the hospital among the study group and a statistically significant difference between both groups was noticed. In addition, the present study clarified that, there was a significant positive correlation between the total score of

QOL and the number of patients' readmission one-year post the nursing discharge plan sessions. This result may be justified by focusing attention on the problem of readmission and supporting interventions to reduce these events have the potential to improve the quality and outcomes of care for AMI geriatric patients. Also, planned preparation to discharge, anticipation of post discharge needs, potential problems, continuity of care between hospital and home or community services may lead to the reduced rate of post discharge complications and readmission. A study done by Woodend et al (2008)[35] in Canada supported these findings and stated that an advanced practice nurse centered discharge planning and home care intervention for at risk hospitalized elders reduced readmissions, lengthened the time between discharge and readmission.

Regarding death rate among the study subjects during 1 year post discharge from hospital. The present study shows that death rate among the subjects in the study group was lower than subjects in the control group and the difference between both groups was not statistically significant. Moreover, no significant correlation between the total score of QOL and number of patients' deaths 1 year post discharge noticed in the current study. This result may be justified by that overall mortality in geriatric patients with MI was found to be related to structural changes of the heart related to the process of aging, which contribute largely to the high early and late mortality of AMI in the aged. On the same line a study carried out by Holay et al (2007)[36] in Nagpur added that, participation in rehabilitation was independently associated with decreased mortality and recurrent MI, and its protective effect was stronger in more recent years.

Patient's education is a primary corner stone of health care intervention. Planned health education for hospitalized geriatric patients post MI was the first step in making positive changes in patients' lives. Moreover, it helps in decreasing burden of care and psychological stress on the caregivers, increase the rate of recovery and quality of life of the elderly patients and decreased complications[37]. To achieve this goal, support and teach the geriatric patients about their disease process to increase their knowledge, teach them to adhere with treatment regimen, teaching related drug therapy, controlling of hypertension, hyperlipidemia, smoking and diabetes mellitus, which are the main risk factor, improve patient's compliance, encouraging the physically capable elderly person to walk and to become active. All of these could have important health benefits and outcome. In addition, continuity of care and regular follow up appointments with the health care providers to monitor progress or identify and treat any complications of the disease also is very important.

V.   Conclusion

According the results of the present study, it can be concluded that, geriatric patients with acute myocardial infarction who were exposed to the nursing discharge plan showed a relative improvement in their conditions than those who were exposed to the routine hospital care only. This improvement was manifested in the increment in the post total mean knowledge scores, post total mean practice scores and post total mean quality of life scores as regards to the immediate, two months and four months of evaluation after discharge from the hospital. Moreover, a significant improvement and decrease in the number of hospital readmissions was observed among subjects in the study group after implementation of the nursing discharge plan and the death rate also was decreased but the difference was not statistically significant at one year of follow up.

VI.   Recommendations

Based on the results of the study, the following recommendations are suggested:
1- Give a booklet on discharge for AMI geriatric patients for daily self-management measures to improve their health status and to avoid any complication.
2- Family members and caregivers should actively participate in planning the care for AMI geriatric patients so that they can support and encourage them to manage their condition.
3- Geriatric patients with myocardial infarction should be encouraged for regular follow up to evaluate their health status and to improve their quality of life.

Acknowledgement

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