



International Journal of Nursing and Healthcare Research

Journal home page: www.ijnhrjournal.com



EXCAVATING PROBLEMS AND INSTITUTING COLLABORATIVE CARE OF PATIENT WITH MYOCARDIAL INFARCTION AT CORONARY CARE UNIT, SELECTED HOSPITAL, COIMBATORE

P. Kavitha*¹

¹*Department of Medical Surgical Nursing, Ganga College of Nursing, Coimbatore, Tamil Nadu, India.

ABSTRACT

This present research study was done on Excavating problems and Instituting-collaborative care of patient with Myocardial infarction first 48 hours of admission at Coronary care unit of Selected Hospital in Coimbatore. It helps to develop the nursing protocol on collaborative care of patients with myocardial infection. The evaluative approach, descriptive design was adapted for this study. The total sample of 10 patients with Myocardial infarction. The sample was selected by the non-probability convenience sampling technique. The Data was collected once in half an hour for first 8 hours and once in every 2 hours for next 40 hours by assessment chart and investigator dairy .By this, identified problems and care was given related to the problem and evaluated the effectiveness of given care. Care given by the health care personnel's also included. Among 10(100%) samples, 15% developed Pre Mature Ventricular Contraction at initial 36 hours of hospitalization and 40% developed Ventricular Tachyarrhythmia at initial 24 hours of hospitalization. 40% had Constipation at the end of 48 hours of hospitalization. 40% had Left Ventricular Failure at initial 36 hours of hospitalization. 20% had Sinus Tachycardia, Sinus Bradycardia at 24 hours of hospitalization. 30% had Hyper Pyrexia at third and fourth 12 hours of hospitalization. Most of the problems occurred at initial 36 hours of hospitalization. There was a significant association between smoking and hyper tension, type A personality and hyper tension. Nursing protocol was formulated to excavate problems, institute nursing interventions and to promote the collaborative care to minimize the chest pain, maintain the comfortless and maintain the respiratory status. Effective nursing intervention was maintained the normal tension and maintained the temperature at initials on set of problems .The measures were successful to treat pre mature ventricular contractions and ventricular tachyarrhythmia. Problems were identified, complications were prevented by prompt measures.

KEYWORDS

Patients, Myocardial Infarction, Problems and Collobrative Care.

Author for Correspondence:

Kavitha P,
Department of Medical Surgical Nursing,
Ganga College of Nursing,
Coimbatore, Tamil Nadu, India.

Email: kkavi_th@yahoo.com

INTRODUCTION

Heart is one of the vital organ in the human body, which is a durable and efficient pump. The human heart works tirelessly, from the moment of formation its beings beating, until the moment it stops. On an average life time, the human heart more than two and half billons times without over pausing to rest. The heart provides the power needed for life. The

life sustaining power has throughout time, caused an air of mystery to surround the heart. Modern technology have much of the mystery. But there is an air of fascination and curiosity which may lead to understand.

In order to exert this life sustaining power, the heart function as a pump. The heart muscle must be adequately supplied from coronary arteries. When these are damaged either by block or narrowing by various reason such as thrombus, embolus, which ends up with the coronary artery disease (CAD)¹.

WHO (2000)² WHO stated that the majority of the deaths due to cardiovascular disorder attributed to coronary heart diseases. Cardiovascular diseases contributed to 78% cardiovascular deaths.

Berger (2000)³ stated that Myocardial Infarction is a first manifestation of CAD. Acute myocardial infarction is the leading cause of morbidity and mortality in the United States. There are 1.5 million people experienced acute myocardial infarction (AMI)^{4,5} and nearly 5,00,000 die of it. Nearly half of these deaths occur the before patient receive medical care or in a Hospital. Careful assessment of risk factors is necessary for all patient who are admitted in CCU. Lancet (1997)⁶ conducted a study to explore the risk factors among 368 AMI women and 941 non AMI women. The results revealed that all the women with AMI were the age of 20-44 years along with hypertension, diabetes mellitus and hypercholestermia, family history of AMI than among non AMI women.

Stammer (2002)⁷ identified that AMI occur frequently among patients older than 45 years with other risk factors like usage of cocaine, Insulin dependent diabetes mellitus, hyper cholestermia and those with family history of CAD and Type A personality and sedentary life style^{8,9}.

The post infraction period is utterly critical while the patient experiencing MI, action must be taken immediately to minimize the myocardial damage^{10,11}. To assure rapid treatment and development of fast track protocols to facilitate thrombolytic therapy for a patient with MI is necessary one. Patients are at great risk to develop complications during the first 48 hours of post infraction period.

AHA (1999)¹² noted that, Sinus bradycardia occurs frequently in 30% to 40% with AMI especially with in the first time of infarction and heart block may develop in approximately 6% to 14% of patients with AMI. Atrial fibrillation associated with AMI most often occurs within the first 24 hours and is usually transient but may reoccurs.

Subramaniam, Vijaya (1996)¹³ conducted a prospective study among 300 cases of CAD to reveal the occurrence of complications. There were deaths (7.33) of which 3 cases (13.63) experienced right bundle branch block, 3 case (13.63) with left bundled branch block. One case experienced first degree, Atrioventricular block 8, with old MI, 4 cases with left ventricular failure (18.18%), one case (4.54%) with congestive heart failure, 4 cases (18.18%) with cardiogenic shock, 2 cases with rupture of heart with cardiac tamp anode, one case (4.54%) with post infraction angina and 4 cases (18.18%) with ventricular fibrillation.

The physician and the nurse should be competent enough to identify the problems in post-infarction period especially at initial 48 hours, in order to provide care and avoid complications.

In critical care settings information must be gathered rapidly to set priorities in nursing management and to provide immediate treatment to resolve the problem. Over the past decade, there has been decline in number of deaths that occurs in hospitalization with AMI by advanced technology. Even though the technology has developed, the AMI patients are delayed, to diagnose to avail treatment. During this critical situation, nurses must act as an early detector for the problems and institute effective treatment to resolve the problems.

Awareness of problem is the key to overcome the problem. A part from the analytical, managerial and communication skills, the nurse should possess problem solving abilities, which may help our nursing professional in discharging quality of patient care.

OBJECTIVE

To excavate the problems and instituting and evaluating the collaborative care on patients with myocardial infarction.

MATERIAL AND METHODS¹⁴⁻³⁰

The evaluative research approach and descriptive design adopted for this study.

The study was conducted in a 5 bedded coronary care unit with all facilities in KMCH, Coimbatore. Sample who were admitted within 48 hours after myocardial infarction during the study period. A tool adopted for this study was developed by review of literatures and with experts suggestions. It consists of 3 section namely Demographic profile and risk, Assessment chart and Investigator dairy.

Formal permission was obtained from the chairman and cardiologist, KMCH, Coimbatore. Based on selection criteria, samples were selected. Data collection was started from the time of admission at initial 48 hours of hospitalization for each sample. The investigator has chosen the next sample after completing the 48 hours care for the previous sample.

The data collection was done in the period of four weeks. The data was collected once in every half on hour for first 8 hours and once in 2 hours for next 40 hours by the help of assessment chart, and investigator dairy. The investigator identified the problem from the collected data and the care was given related to problem. The evaluation has been done then and there to find out the effectiveness of given care. The investigator spend time for each visit based on the problems identified and intervention given to the patient. The care given by health care professionals were also included. The information was gathered from the nurses records, patients charts, nurses and physicians. Investigator dairy was consist of all details gathered from above records.

RESULTS

As shown in Table No.1, Among 10 samples, majority of the samples 4(40%) were in the age group of 51-60 years. Regarding the sex, 9(90%) were male. Regarding the religion, 8(80%) samples were Hindu. Regarding the educational status, Majority of the samples 4(40%) had primary education and 4(40%) had higher secondary education and other 2 illiteracy.

Regarding the type of work, 6(60%) were sedentary workers. Regarding income, 6 (60%) samples family

income was above Rs 3001. All samples were married and residing in plain area. Regarding the type of family, 5(50%) samples belonged to joint family. Regarding type of meal pattern, most of the samples 8(80%) were Non-vegetarian, only 2(20%) sample had previous attack.

As shown in Table No.2, Among 10(100%) samples, 8(80%) were smokers, 5(50%) alcoholic, 1(10%) was tobacco chewer, 4(40%) had history of diabetes mellitus, 2(20%) had history of Hypertension, 2(20%) obese, 3(30%) Hypercholetemia, 7(70%) belonging to Type A personality and 2(20%) were influenced by heredity.

As shown in Table No.3, among 10 samples, 5(50%) sample developed Premature ventricular contraction, 4(40%) developed Ventricular tachyarrythmias, 1(10%) developed Cardiogenic shock, 2(20%) were experienced Sinus bradycardia, 4(40%) were experienced left ventricular failure, 4(40%) were experienced hypotension, 2(20%) were experienced hypertension, 1(10%) developed pulmonary edema, 4(40%) had constipation. 3(30%) had post infarction angina. All the samples 10(100%) were experienced chest pain, dyspnoea and palpitation.

As shown in Table No.4 among 10 samples. One (10%) sample had Premature ventricular contraction at initial 12 hours of hospitalization, 3(30%) had at second 12 hours of hospitalization, 1(10%) sample had at third 12 hours of hospitalization.

Two (20%) sample had Ventricular tachyarrythmias at initial 12 hours of hospitalization and 2(20%) sample had Ventricular tachyarrythmias at second 12 hours of hospitalization. Two (20%) sample had sinus tachycardia at initial 12 hours of hospitalization. One (10%) sample had sinus bradycardia at initial 12 hours of hospitalization and 1(10%) had at initial 12 hours of hospitalization 1(10%) sample had cardiogenic shock at initial hospitalization. One (10%) samples had left ventricular failure at second 12 hours of hospitalization and 3(30%) had at third 12 hours of hospitalization. 1(10%) sample had pulmonary edema at initial 12 hours of hospitalization.

Two (20%) sample had post infarction angina at second initial 12 hours of hospitalization and 1(10%)

had at third 12 hours of hospitalization. Two (20%) sample had hypotension at initial 12 hours of hospitalization and 1(10%) had at Second 12 hours of hospitalization, 1(10%) had at third 12 hours of hospitalization 2(20%) sample had hypotension at initial 12 hours of hospitalization. One (10%) samples had hypokalemia at second 12 hours of hospitalization, 1(10%) had at third 12 hours of hospitalization and 1(10%) sample had hypokalemia at initial 12 hours of hospitalization. Two (20%) sample had hyperpyrexia at third 12 hours of hospitalization and 1(10%) sample had hyperpyrexia at initial 12 hours of hospitalization.

All samples were experienced chest pain, and palpitation at initial hour of hospitalization.

Three (30%) samples had constipation at end of the 48 hours of hospitalization.

DISCUSSION

The first objective of the study was to identify the problems of patient with myocardial infraction

In this study, among 10 samples, 50% developed premature ventricular contraction due to the firing of an irritable pacemaker in the ventricle by myocardial hypoxia t the first 36 hours of hospitalization, 40% had ventricular tachyarrhythmias due to the re-entry of impulses to the sinoatrial node at the first 24 hours of hospitalization, 10% had cardiogenic shock due to the poor cardiac tissue perfusion at the initial 3 hours. 20% had sinus tachycardia due to increased sympathetic stimulation by the physical stress and 20% had sinus bradycardia due to sinoatrial node fires at the rate of less than 60/minute due to increase vagal tone at the initial 12 hours of hospitalization. 40% had left ventricular failure at initial 36 hours. 40% had hypotension due to the decreased cardiac output at first 24 hours, 10% had hyperkalemia at initial 12 hours, 20% had hypokalemia at initial 36 hours, 30% had hyperpyrexia due to release of myocardial toxins at third and fourth 12hrs of hospitalization. All the samples had chest pain, dyspnea, palpitation, due to poor cardiac perfusion at initial hours. 10% had pulmonary edema due to accumulation of fluid in the interstitial space surrounding the alveoli secondary to irritable sterna region due to myocardial ischemia at second and

third 12 hours. 40% had constipation due to restricted activity at the end of 48 hours of hospitalization.

Among 8(80%) smokers, 20% had hypertension, 20% had sinus tachycardia, 30% developed ventricular tachyarrhythmia's and 40% premature ventricular contractions. Among 30% hypercholestremia, 10% had hypertension, 20% had sinus tachycardia. Among 80% of samples were possessed type A personality, 20% developed sinus tachycardia, and 20% had hypertension.

The second objective was to render the nursing interventions on the patients with myocardial infractions

The related interventions were instituted according to identified problems as follows;

Ventricular tachyarrhythmia's

Premature ventricular contractions

Sinus tachycardia

Cardiogenic shock,
Sinus bradycardia,
Pulmonary edema,
Left ventricular failure,
Post infarction angina,
Hypo/hypertension,
Hyper pyrexia,
Constipation,
Dyspnea, palpitation,
Hypokalemia/hyperkalemia.

The third objective to evaluate the nursing intervention implemented

Based on identified problems related nursing interventions were instituted and evaluation was done on patient with myocardial infarction.

The measures were instituted to maintain the heart rhythm, blood pressure and heart rate, fluid and electrolytes management and to alleviate chest pain and dyspnea.

The fourth objective was to associate the selected demographic variables with selected problems

There was a significant association between smoking and hypertension, sinus tachycardia.

There was no significant association between smoking and ventricular arrhythmias.

There was a significant association between type A personality and Hypertension, sinus tachycardia.

There was a significant association between cholestremia and hypertension, sinus tachycardia.

ASSOCIATION BETWEEN SELECTED DEMOGRAPHIC VARIABLES AND SELECTED PROBLEMS

The obtained chi square value (7.264) is more than the table value (3.841) at 0.5 significant level. It means that there is a significant association between Smoking and Hypertension.

The obtained chi square value (7.264) is more than the table value (3.841) at 0.5 significant level. It means that there is a significant association between Smoking and Hypertension.

The obtained chi square value (6.104) is more than the table value (3.841) at 0.5 significant level. It means that there is a significant association between Type A Personality and Sinus Tachycardia.

The obtained chi square value (4.144) is more than the table value (3.841) at 0.5 significant level. It means that there is a significant association between Type A Personality and Hypertension.

The obtained chi square value (4.184) is more than the table value (3.841) at 0.5 significant level it means that there is a significant association between Hypercholestremia and Sinus Tachycardia.

Table No.1: Distribution of the Samples According to Their Demographic Profile

S.No	Demographic factors	Frequency (n=10)	Percentage (%)
Age (In years)			
1	30-40	1	10
2	41-50	3	30
3	51-60	4	40
4	61-70	2	20
Sex			
5	Male	9	90
6	Female	1	10
Religion			
7	Hindu	8	80
8	Muslim	1	10
9	Christian	1	10
10	Others	0	0
Educational Status			
11	No Schooling	0	0
12	Primary	4	40
13	Secondary	1	10
14	Higher secondary	4	40
15	Degree	1	10
Type of work			
16	Secondary	6	60
17	Moderate	2	20
18	Heavy	2	20
Income			
19	< Rs.1000	0	0
20	Rs.1001-2000	0	0
21	Rs.2001-3000	4	40
22	>Rs.3000	6	60
Marital Status			
23	Married	10	100
24	Unmarried	0	0
Area of Living			
25	Plain Area	10	100
26	Hilly Area	0	0
Type of Family			
27	Nuclear family	5	50
28	Join family	5	50
Type of meal pattern			
29	Vegetarian	2	20
30	Non-Vegetarian	8	80
History of previous attack			
31	Yes	2	20
32	No	8	80

Table No.2: Distribution of Samples According to their Risk factors

S.No	Risk Factors	Frequency (n=10)	Percentage %
1	Smoking	8	80
2	Alcohol consumption	5	50
3	Tobacco Chewing	1	10
4	Diabetes mellitus	4	40
5	Hypertension	2	20
6	Obesity	2	20
7	Hyper chloestremia	3	30
8	Post-menopausal women	0	0
9	Type A Personality	7	70
10	Hereditary influence	2	20

Table No.3: Distribution of the sample According to their Identified Problems

S.No	Problems	Frequency (n=10)	Percentage %
1	Premature ventricular contraction	5	50
2	Ventricular tachyarrythymias	4	40
3	Cardiogenic shock	1	10
4	Sinus tachycardia	2	20
5	Sinus bradycardia	2	20
6	Left ventricular Failure	4	40
7	Pulmonary edema	1	10
8	Post infarction angina	3	30
9	Hypotension	4	40
10	Hypertension	2	20
11	Hypokalemia	2	20
12	Hyperkalemia	1	10
13	Hyperpyrexia	3	30
14	Chest pain	10	100
15	Dyspnea, palpitation	10	100
16	Constipation	4	40

Table No.4: Distribution of the Sample According to their Onset of problem

S.No	Problems	Time of onset of the problems			
		1-12 hrs	13-24 hrs	25-36 hrs	37-48 hrs
1	Premature ventricular contraction	1	3	1	-
2	Ventricular tachyarrythymias	2	2	-	-
3	Cardiogenic shock	1	-	-	-
4	Sinus tachycardia	2	-	-	-
5	Sinus bradycardia	1	1	-	-
6	Left ventricular Failure	-	1	3	-
7	Pulmonary edema	1	-	-	-
8	Post infarction angina	-	2	1	-
9	Hypotension	2	1	1	-
10	Hypertension	2	-	-	-
11	Hypokalemia	-	1	1	-
12	Hyperkalemia	1	-	-	-
13	Hyperpyrexia	-	-	2	1
14	Chest pain	10	-	-	-
15	Dyspnea	10	-	-	-
16	palpitation	10	-	-	-
17	Constipation	-	-	-	4

Table No.5: Association between Smoking and Hypertension

S.No	Habit of smoking	Hypertension		Frequency (N)	Df	Chi square value
		Yes	No			
1	Smoker	2	6	10	1	7.264
2	Non-smoker	0	2			

Table No.6: Association between Smoking and Sinus Tachycardia

S.No	Habit of smoking	Sinus tachycardia		Frequency (N)	Df	Chi square value
		Yes	No			
1	Smoker	2	6	10	1	7.264
2	Non-smoker	0	2			

Table No.7: Association between Type A Personality and Sinus Tachycardia

S.No	Type A personality	Sinus tachycardia		Frequency (N)	Df	Chi square value
		Yes	No			
1	Yes	2	6	10	1	6.104
2	No	0	2			

Table No.8: Association between Type A Personality and Hypertension

S.No	Type A personality	Hypertension		Frequency (N)	Df	Chi square value
		Yes	No			
1	Yes	2	5	10	1	4.144
2	No	0	3			

Table No.9: Association between Hypercholestermia and Sinus Tachycardia

S.No	Hypercholestermia	Sinus tachycardia		Frequency (N)	Df	Chi square value
		Yes	No			
1	Yes	2	6	10	1	4.184
2	No	0	2			

CONCLUSION

The patients admitted earlier with chest pain promote the prognosis and reduce mortality. Majority of the Problem arised at initial 36 hours during hospitalization. Nurses should act as an earlier detector to identify the problems at initial 48 hours of myocardial infarction and able to provide prompt care and prevent the complications. It helps to develop the nursing protocol on collaborative care of patients with myocardial infection. It can be used as a ready reckoner for the future nurses.

ACKNOWLEDGEMENT

The author's heartfelt thanks to the Head of the Department, Faculty of Medical Surgical Nursing Department, Physicians, Nurses, Patients at KMCH Hospital.

CONFLICT OF INTEREST

We declare that we have no conflict of interest.

BIBLIOGRAPHY

1. Bahl V K. Coronary artery disease in Indians (online) Abstract from; www.procar@Usa.health net.org.
2. WHO report. Coronary Statistics, 2000, 4-6.
3. Berger P B. 2001 AMI (Online), Abstract from; www.google.com, 2002.
4. Chopra K L. Management options after thrombolysis in AMI, *The Cardiothoracic Journals*, 2(2), 1999, 11.
5. Chopra K L. During therapy for survivors of Acute Myocardial infarction, *The Cardiothoracic Journals*, 3(4), 1997, 11.
6. Lancet. Oral contraceptives and the risk of heart attack (online), Abstract from; www.google.com, 1997.
7. Stammer S. Myocardial infarction, *Emedicine Journal*, 3(1), 2002, 6-12.

8. Banerjee A. Coronary artery disease and its problems in management, *JIMA*, 99(9), 2001, 70-73.
9. Bulliya G. Risk of CAD in women after menopause, *JIMA*, 99(9), 2001, 478-480.
10. Chatterjee S S. Risk factor of Myocardial infarction in Indian women, *IHJ*, 39(6), 1992, 57-59.
11. Dorian P, Cassdan B S and Cooper R. Lidocaine for shock resistant Ventricular fibrillation after myocardial infarction, *The New England Journal of Medicine*, 346(12), 2002, 60-63.
12. AHA report. Guidelines for the management of patients with AMI (online), Abstract from www.msn.com, 1999.
13. Subramaniyan G. A prospective study of Ischemic Heart Disease, *The Cardiothoracic Journal*, 2(3), 1996, 48.
14. Black J M, Hawks J H and Keene A M. Medical Surgical nursing: Critical Management for positive outcomes Philadelphia: *W.B Saunders publication*, 6th edition, 2001, 1258-1265
15. Braunwald E. Heart disease USA: *W.B Saunders Company*, 4th edition, 2001, 1200-1212.
16. Constant J. Bedside Cardiology, USA: *little brown and Company*, 4th edition, 1993, 426.
17. Dash P K and Panda V N. Medicine for nurses India: *Jaypee brothers medical publishers pvt. Ltd*, 2nd edition, 1997, 306.
18. Dossey B. Critical care Nursing Philadelphia: *J.B. Lippincott Company*, 3rd edition, 1992, 415-418.
19. Froblick E D. The Medicine for Nurses USA: *W.B Saunders Company*, 3rd edition, 1997, 75-79.
20. Gulanick M, Klopp A, Galanes S, Gradishar D and Puzas M K. Nursing care plans:Nursing Diagnosis and Intervention USA:*Mosby Publication*, 4th edition, 1998, 328-339.
21. Harrison. Principles of Internal Medicine USA:Mc Graw Hill Company, 4th edition, 1990, 953-964.
22. Hudak C M, Gallo B A and Marton G P. Critical care Nursing: A holistic approach USA: *Lippincott Ravon publishers*, 7th edition, 1998.
23. Lewis S M, Collier I C and Heit Kumper M M. Medical Surgical Nursing Assessment and Management of Clinical problems USA:*Mosby publications*, 5th edition, 2000, 373.
24. Azpitarte J. Sinus Rythm restoration benefits patient with LV dysfunction, *IJCP Medi news*, 120(1), 2001, 15.
25. Chacko K N. Demographic life style, Socio economic transition fuelling epidemic of coronary artery disease in developing countries, *Medical times*, 29(12), 1999, 1-3.
26. Chenniappan M. ECG made Easy, *Tamilnadu IMA Medical Journal*, 32(4), 2000, 6.
27. Aminian abahram. Factor analysis of cardiogenic shock, complicating AMI (online) Abstract from: www.google.com.1998.
28. Francis T. Death from Cardiovascular diseases (online), Abstract from; www.google.com, 1997.
29. Rich D. How to survive a heart attack in the first 24 hours (online) Abstract from: www.google.com, 1996.
30. Setaro S. Post myocardial Infarction and its complications (online) Abstract from: www.emr.nurse.com, 2002.

Please cite this article in press as: Kavitha P. Excavating problems and instituting collaborative care of patient with myocardial infarction at coronary care unit, selected Hospital, Coimbatore, *International Journal of Nursing and Healthcare Research*, 1(1), 2017, 1-9.