Effectiveness of Planned Nursing Interventions on Critical Care Problems among Patients with Congestive Heart Failure

Mrs. P. Ruba. Msc.(N), Mrs. Lakshmiprabha. M.Sc (N) HOD, MSN,
Mrs.B.Sumathy.M.Sc(N),

Associate professor, Vinayaka Missions Annapoorna college of nursing, Salem

Abstract: A case study was conducted on the patients with congestive heart failure at Vinayaka Mission Hospital, Salem with the objective of assessing the effectiveness of planned nursing interventions for the Patients with congestive heart failure. All patients had breathing difficulty, edema, chest pain, tachycardia and fatigue. Aim was to bring better outcome and prevent further complication. Results revealed that the duration of hospital stay was minimized and the treatment was cost effective. There is statistically (p<0.05) significant improvement in health status of patients with Congestive Cardiac failure. Thus, the planned nursing interventions were found to be effective for patients with congestive heart failure.

I. Introduction

In Asia, rapid economic growth has increased risk factors-obesity, diabetes mellitus and hyperlipidemia. This is due to hectic urban lifestyles common companions such as poverty of physical activity, tobacco smoking and diets rich in calories, salt and cholesterol. These unhealthy lifestyles commonly lead to cardiovascular diseases such as coronary artery disease and hypertention which in turn lead to the common path of heart failure

Congestive heart failure is an abnormal condition involving impaired cardiac pumping. Congestive heart failure is associated with numerous types of heart disease, particularly with longstanding hypertension and coronary artery disease. Congestive heart failure is characterized by ventricular dysfunction, reduced exercise tolerance, diminished quality of life, and shortened life expectancy.

Statement of problem

A study to assess the effectiveness of planned nursing interventions on critical care problems among patients with congestive heart failure at intensive care unit in Vinayaka Mission Hospital , Salem.
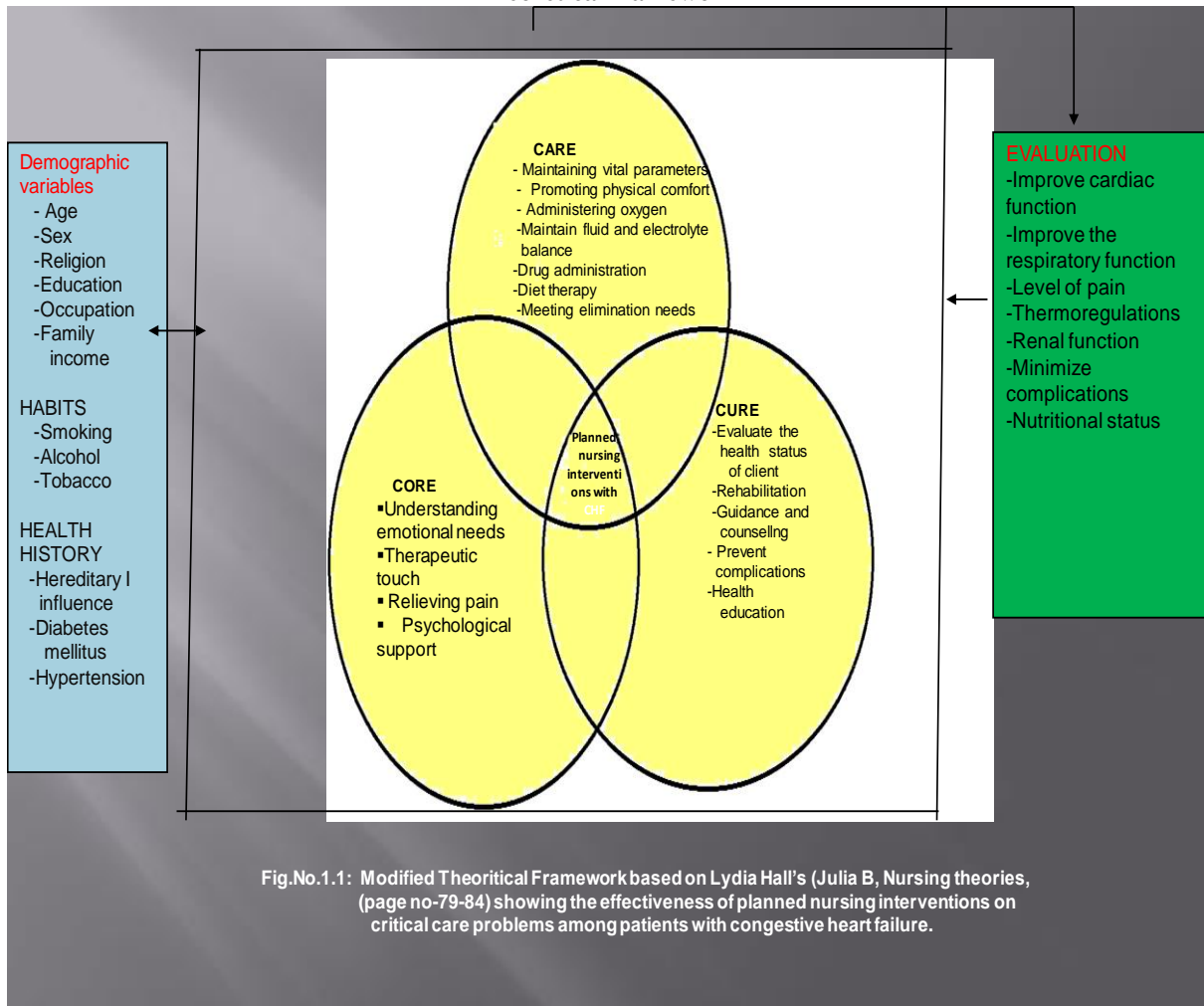Objectives
- To administer planned nursing interventions for patients with congestive heart failure.
- To evaluate the effectiveness of the patients after administering planned nursing interventions for the patients with congestive heart failure.
- To associate effectiveness of planned nursing interventions with selected demographic variables.

Hypotheses

Ho1 - There will be no significant difference between the patient with congestive heart failure before and after administering planned nursing interventions.
Ho2 - There will be no significant association with the patient outcomes after administering planned nursing interventions with their demographic variables.

Theoretical framework

Fig.No.1.1: Modified Theoritical Framework based on Lydia Hall's (Julia B, Nursing theories, (page no-79-84) showing the effectiveness of planned nursing interventions on critical care problems among patients with congestive heart failure.

II. Methodology

Case study design with evaluative approach was selected for this study where the data was collected to assess the effectiveness of planned nursing interventions for the patients with congestive heart failure. Purposive sampling technique had used to select the subjects for the study. A total of 10 patients with congestive heart failure admitted in intensive cardiac care unit in Vinayaka Mission hospital, Salem were the samples for the study. Pretest and post test was performed by using dyspnoea, pain, edema rating scales to assess the effectiveness of planned nursing interventions before and after implementation of planned nursing interventions.

Planned Nursing Interventions Of Patients With Ccf;
Nursing diagnosis
1. Decreased cardiac output related to inability of the heart to pump adequate amount of blood .
2. Impaired gas exchange related to alveolar edema due to elevated ventricular pressure.
3. Chest pain related to increased work load of heart .
4. Fluid volume excess related to retention of sodium and water.
5. Imbalanced nutrition less than body requirement related to anorexia.
6. Activity intolerance related to imbalance between oxygen supply and demand.
7. Insomnia related to chest pain.
8. Fear related to hospital admission and fear of death.
9. Knowledge deficit regarding lack of information about treatment regimen and home care management.

Assessment	Nursing Diagnosis	Objectives	Intervention
Subjective data **Objective data** Assess - ECG variations through cardiac -monitor, - heart rate, - peripheral pulses, - fatigue through HB, - weakness through ability to move	Decreased cardiac output related to inability of the heart to pump adequate amount of blood.	-The patient's cardiac output will be improved	-Monitor heart rate and blood pressure to know baseline data -Reassess peripheral pulses,weak pulse indicate decrease cardiac output -Provide fowler's position which helps for expansion of lungs -Administer oxygen which helps to meet oxygen demands -Maintain adequate ventilation which helps to meet oxygen demands -Restrict activity and provide quite relaxed environment which helps to reduce oxygen demand. -Administer cardiac drugs - Observe for signs and symptoms of cyanosis
Subjective data **Objective data** Assess - saturation through pulse oximetry, -capillary refilling, - ABG analysis, -dyspnoea by scale,	Impaired gas exchange related to alveolar edema due to elevated ventricular pressure	-The patient's gas exchange will be improved	- Monitor saturation by pulse oximetry, to know oxygen saturation in blood - Provide breathing exercises which helps to relieve dyspnoea -Provide fowler's position which helps to meet oxygen demand -Administer oxygen which helps to relieve dyspnoea -Maintain adequate ventilation which helpsto improve breathing pattern -Place patient at physical and emotional rest which helps to reduce work of heart -Administer Inj.lasix which helps to reduce pulmonary congestion
Subjective data **Objective data** Assess - characteristics of pain through pain scale, - irritability, - restlessness, - facial grimace	Chest pain related to increased workload of heart	-The patient's chest pain will be reduced	-Reassess level of pain with pain scale -Monitor heart sounds and breath sounds - Administer oxygen which helps to improve saturation - Provide fowler's position which helps to provide comfort -Teach about breathing exercises andrelaxation techniques which helps to reduce pain -Administer analgesics which helps to reduce pain

Subjective data **Objective data** Assess - edema through scale, - serum electrolytes, - ABG analysis	Fluid volume excess related to sodium and water retention.	- The patient's fluid volume will be maintained	-Reassess edema with edema scale -Monitor jugular vein distention -Monitor weight daily and sudden increase weight indicates fluid overload -Monitor fluid and electrolyte imbalance which helps to correct the imbalance -Administer diuretics which helps to reduce edema -Maintain intake and output chart which helps to identify fluid balance -Restrict sodium and fluids which helps to prevent fluid overload. -Give potassium supplements as prescribed -Administer IVfluids carefully
subjective data **objective data** Assess 24 hours nutrition recall	Imbalanced nutrition less than body requirement related to anorexia	-The patient's nutritional status will be maintained	-Monitor weight of the client which helps to identify weight loss/ gain -Maintain intake and output chart -Provide feed 2 hourly which helps to meet nutritional needs -Restrict the fluids which helps to reduce edema -Restrict fatty diet which helps to reduce cholesterol level -Provide sodium restricted diet as per order which helps to decrease hypertension -Provide high protein and calorie diet which helps to give energy
Subjective data **Objective data** Assess -fatigue through HB -weakness through ability to move	Activity intolerance related to fatigue	-The patient's activities will be improved	-Encourage to verbalize feelings regarding fatigue and limitations - Assist the patient with self care activities and increase the activities gradually which helps to keep activities within the limits of his cardiac reserve - Provide backcare which helps to prevent bedsore -Meet nutritional needs of patient which helps to reduce workload

Subjective data **Objective data** Observe through tiredness, restlessness	Insomnia related to pain and dyspnoea	-The patient's sleeping pattern will be improved	-Place patient at physical and emotional rest, space activities and conserve energy which helps to decrease the myocardial oxygen need -Encourage patient to perform range of motion exercises -Provide quite environment limiting stimuli which helps to reduce cardiac workload and cata cholamines stimulation -Provide calm and comfortable environment which helps to enchance sleep -Provide relaxation therapy which helps to reduce workload and promote sleep -Provide adequate rest especially after meals which helps to promote sleep -Administer mild sedatives as per order which helps to reduce anxiety and improve sleep

Subjective data objective data observe through restlessness, asking questions	Fear related to hospital admission and fear of death	-The patient's fear will be reduced	-Allow and encourage the patient and family to ask questions and bring up common concerns which helps to reduce fear and strengthens nurse patient relationship -Allow patient and family to verbalizefeelings which helps to elicits support and comfort can relieves tension , worries -Provide psychological support which helps to reduce fear -Explain all the procedures or interventions before performing which helps to get cooperation. -Explain the signs and symptoms and early management of congestive heart failure which helps to prevent complications
Subjective data . Objective data Assess through asking doubts	Knowledge deficit regarding lack of information about treatment regimen and homecare management	- The patient's knowledge will be improved	-Explain about prevention of further episodes which helps to prevent complications -Advise to take medications daily -Monitor weight daily -Restrict sodium intake -Advise to participate in a daily exercise program -Avoid activity in extremes of heat and cold, which increase the work of the heart -keep regular appointments with physician

III. Results

-Highest percentage (80%) of patients with congestive heart failure were married, and majority (60%) of the of patients were retired.Highest percentage (40%) of patients with congestive heart failure were sedentary worker and 60% of them had the habit of smoking and alcoholism. Majority(90%) of patients with congestive heart failure were non-vegetarian and 50% of them had the etiology of CAD for developing congestive heart failure.

General assessment was done to all patients on admission. Around 70% of the patients were adequately nourished and 30% of patients were obese. For all the patients cardiac and pulmonary assessment was done daily. About 60% of patients had nasal flaring and used accessory muscles for breathing. In auscultation, each 40% patients had crackles and rhonchi, whereas 20% of patients had crepitus. Around 40% of patients had jugular vein distention and murmur. All the ten patients treatment provided on admission was comfortable positioning, o2 administration, cardiac monitoring and IV fluid administration. The intake is given for all the patient is kept between 1500ml to 2000ml. the urine output is improved than the intake with keeping negative balance so that to reduce the excess of fluid from the body.

Table No.4.3.1: Paired 't' test of pretest and post test assessment of dyspnoea score

	Pre test		Post test		Mean difference	't'-value	P-value
	Mean	SD	Mean	SD			
Dyspnoea scale	6.7	2.72	0.8	2.09	5.9	11.64	0.000***

*-p<0.05 significant **-p<0.01 and ***-p<0.0001 highly significant

Paired 't' value was calculated to analyse the difference between pretest and post test dyspnoea scores shows that significant difference was found (t) at 0.001 level of significant between pre and post test assessment score. Thus, it can be interpreted that difference in mean score values related to the above mentioned areas were true difference and not by chance. Hence, the research hypothesis is accepted (p<0.01).

Table No.4.3.2:Wilcoxon sign rank test of pretest and post test assessment of edema and pain score

	Pre test		Post test		'z'-value	P-value
	Mean	SD	Mean	SD		
Edema scale	2.4	1.17	1.1	0.32	2.563	0.0104*
Pain scale	5.2	4.24	0.4	0.699	2.544	0.011*

*-p<0.05 significant **-p<0.01 and ***-p<0.0001 highly significant

'Z' value was calculated to analyse the difference between pretest and post test pain and edema scores shows that significant difference was found (Z) at 0.001 level of significant between pre and post test assessment.
Chi quare analysis reveals that there was no significant association between critical care problems among patients with congestive heart failure with age, sex, educational status, occupation, marital status, type of work, habits, dietary pattern. Planned nursing interventions were effective and individualized care is given which reduced length of hospital stay.

IV. Discussion

The findings are -Highest percentage (60%) of patients with congestive heart failure were in the age group of 61 and above and most (80%) of them were males. Majority(90%) of patients with congestive heart failure were non-vegetarian and 50% of them had the etiology of CAD for developing congestive heart failure. Majority (100%) of patients were hospitalized with similar complaints like dyspnoea, edema, chest pain, fatigue, tachycardia. This findings is supported by Ward D.A(2009), who stated that most of them were having complaints of dyspnoea, chestpain, edema, tachycardia. For all the patients routine investigation done. Clinical support of hemodynamic monitoring and ABG findings were reviewed. Intake is limited to 1.5 litres, which is maintained by feeding. For all patients strict intake and output is maintained.

The major problems reported in all the patients were dyspnoea, edema, chestpain, fatigue, tachycardia, oliguria etc. the above symptoms were mostly resolved in all patients. Thus the planned nursing interventions provided was effective in relieving and minimizing the symptoms of congestive heart failure patients. These findings are supported by Jeffery wright(2007), who reported that the planned nursing interventions provided by professionally skilled nurses can effectively improve the condition of the congestive heart failure patients. The overall incidence of speedy recovery is higher among patients who receive a systematically planned nursing interventions in acute care settings.

V. Recommendations

Based on research findings the following recommendations can be made
❖ The similar research can be conducted in a larger group of samples.
❖ The research can be conducted to assess the effectiveness of cardiac rehabilitation measures in reducing the recurrence of complications of congestive cardiac failure.
❖ This research can be conducted to assess the effectiveness of Nursing care in modifiable risk factors of congestive cardiac failure among clients with hypertension.
❖ A comparative study can be conducted in different settings, private and Government hospitals.

VI. Conclusion

Based on the findings it can be concluded that all (100%) of them had dyspnoea, poor health condition, impaired fluid and electrolyte balance, tachycardia, edema, chest pain and fatigue while majority of the patients were male, belongs to the age group of 61 years and above. In evaluation of planned nursing interventions, the patients were maintained normal breathing pattern, improvement in fluid and electrolyte balance, improvement in health status, free from complications, improving coping abilities of patient and family members. The duration of hospital stay was minimized and the treatment was cost effective. There is statistically (p<0.05)

significant improvement in health status of patients with Congestive Cardiac failure. Thus, the planned nursing interventions were found to be effective for patients with congestive heart failure.

References

[1].   American heart association Cardiovascular deaths. [Online] 2009.
[2].   Asystematic review of telemonitoring technologies in heart failure European journal Heart Failure (2009) 11 (5): 506-517
[3].   Ayesha Hasan (2009), "Guidelines on the population with chronic cardiac failure" Asian Journal of clinical cardiology,Vol-11, No.12.
[4].   Azpitate, J. (2007) "Sinus Rhythm Restoration benefits patients with Left ventricular dysfunction", Indian Journal of clinical practice,Medinews, Vol-15.
[5].   Banerjee, A. (2008) "Coronary Artery disease and its problem in Management" Journal of Indian Medical Association, Vol.99, No.9, Pp 70- 73.
[6].   Chopra, K.L. (2007) "Drug therapy for survivors of Acute myocardial infarction" The cardiothoracic Journal, Vol-3,No.4.