IJSN

Indian Journal of Surgical Nursing

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Printed at Saujanya Printing Press, D-47, Okhla Industrial Area, Phase-1, New Delhi - 110 020

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Indian Journal of Surgical Nursing

IJSN

September - December 2016
Volume 5 Number 3

Articles

Indexing information page of Index Copernicus

Received on 29.07.2016, **Accepted on** 10.08.2016 DOI: http://dx.doi.org/10.21088/ijsn.2277.467X.5316.1

IJSN
Volume 5, Number 3

Assess the Clinical Variables and Effectiveness of Structured Teaching Programme on Knowledge Regarding Prevention of Pin Site Infection among Patients with External Skeletal Fixator in a Selected Hospital Bangalore

Shylaja*, B. Venkatesan**

Abstract

Background: External fixation is commonly used to correct bone and soft tissue deformities and fracture healing. Pin site infection is one of the most common and troublesome complication among patient with external skeletal fixator. It is important to impart knowledge on pin site care among external fixator patients. *Aim of the study*: To assess the effectiveness of structure teaching progrmme on knowledge regarding prevention of pin site infection among patient with external fixator. *Methods*: The study was conducted pre experimental –one group pre test and post test design was adopted .study was conducted in Hosmat hospital, Bangalore sample size was 60 by using non probability conveniences sampling technique. The structure questionnaire was used to collect the data. *Results*: The findings of the study revealed that the mean score of knowledge regarding prevention of pin site infection was 13.75 in pre test and 25.02 in post test the maximum score of 32. The paired t test was carried out and it was found to significant at P<0.001 level. *Conclusion*: The present study attempted to assess the effectiveness of structure programme on knowledge regarding prevention of pin site infection . it was found effective in improving the patient knowledge on regarding prevention of pin site infection among patient with external fixator

Keywords: Structured Teaching Programme; Pin Site Infection; External Skeletal Fixator.

Introduction

Pin site infection is a major concern for the orthopaedic nurse managing the patient with a skeletal traction pin or an external fixator. Prevention of pin site infection is an important nursing responsibility and pin site care is essential to avoid infection [1].

Broken bones have a remarkable ability to heal , but it is important that they are held in the correct during the healing process. An external skeletal fixator is a device consisting of multiple pins and external rings or bars which hols a fractured bone in place during the healing process. External fixator are used primarily for too complex fracture such as comminuted or compound unstable to be managed by simple casting , limb reconstruction and ones in which external wounds are present [2].

A retrospective study was conducted determine the incidence of pin tract infection with the total of 285 external fixator with 285 fractures over a 4 year period out of 285 fractures, 32 (11.2%) were complicated by infection. The incidence of infection was 3.9% (3/77) for ring fixators, which was significantly different (P<0.04) from the 12.9% incidence (23/178) for unilateral fixators and 20% incidence (6/30) for hybrid fixator (P=0.004) . The results revealved that the patients with hybrid external fixators had a similar risk of pin tract infection as patients with unilateral fixators and the infection rate in the ring fixator group was significantlry lower that the hybrid and uniloateral fixator group [3].

The care of pin sites is mainly prophylactic and aims to prevent or minimize infection, and reduce the risk of skeletal pin reactions. Pin site care is one important part of the treatment by external fixation and includes the care of the wounds, where the pins

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or wires have been inserted, from the theatre dressing until the wounds are healed. The purpose of pin site care is to prevent infection. So researcher felt teaching patient with external fixator is vital role of nurse in preventing the infection [4].

Objectives of the Study

1. Identify the clinical variable among patients with external skeletal fixator
2. To assess the effectiveness of structured teaching programme knowledge regarding prevention of pin site infection among patients with external skeletal fixator.
3. To associate the pre test level of knowledge regarding prevention of pin site infection among patients with external skeletal fixator With their selected demographic variables and clinical variables.

Methodology

The conceptual model selected for this study is based on Imogene king's goal attainment model. Pre-experimental one group pre test –post test design was adopted for the present study [5]. The study was conducted on patients with external skeletal fixator. A sample size of 60. The tool consist of two section, Section –A: demographic variables of subjects 10 items Section –B: structure interview schedule was to assess the knowledge regarding prevention of pin infection among patients with external skeletal fixator . This includes 32 multiple choice was used as tool to collect the data. Content validity obtained from 8 experts in field of Nursing, Surgeon and Biostatistian. The reliability was established through split of method by using Spearman's Brown's Prophesy formula. The reliability score was r=0.98, the developed tools were found to be statistically reliable [6]. Pilot study was conducted in K.C. General Hospital, Bangalore, at among 6 patients and subjects were selected by using simple random sampling technique to find the feasibility of the study. The main study was conducted at Hosmat Hospital, Bangalore among 60 patients and the data collected was analyzed and interpreted based on descriptive and inferential statistics.

Results

The Table 1 shows the frequency and percentage distribution of patients with external skeletal fixator. With regarding age 7 (11.7%) subjects belong to age of below 20 yrs, 21 (35%) subjects belong to 21-30 yrs, 15 (25%) subjects belong to age group 31- 40 yrs, and 17 (28.3 %) subjects belong to age group of above 41 yrs.

With regarding sex majority of the subjects 43 (71.7 %) were male and rest of them were 17 (28.3%) female. with regarding educational status 17 (28.3%) subjects had higher secondary education, 16 (26.7%) subjects had primary education, 13 (21.7%) subjects had secondary education, 9 (15%) subjects were graduate and 5 (8.3%) were illiterate.

In context to occupational status, 19 (31.6%) subjects were private employee, 16 (26.7%) subjects were government employee, 13 (21.7%) subjects were daily wages, 7 (11.7%) subjects were unemployed and 5 (8.3%) were doing business.

With regards to marital status majority of respondent 29 (48.3%) were married. 24 (40%) respondent were unmarried, 4(6.7%) respondents were widow/ widower and , 3(5%) respondents were divorced . with regarding family income per month 16 (26.7%) had income of below and equal Rs 3000, 17 (28.3) had income of Rs 3001- Rs 6000, 12(20%) had income of Rs 6001-Rs 9000 and 15(25%) had income of above Rs 9001.

Table 2 shows the clinical variables of patient with external skeletal fixator . with regard to types of fracture, majority of the subjects 55 (91.7%) had compound fracture whereas 5(8.3%) subjects had simple fracture. in context with the location of external fixator, majority of the subjects 49 (81.7%) had external fixator in lower extremities and 11 (18.3%) subjects had in lower extremities.

In relation to duration of application of external fixator, most of the subjects 23 (38.3%) had less than 1 month, 17 (11.7%) subjects had for 1-2 months , 13 (21.7%) subjects had 2-3 months and 7 (11.7%) subjects had more than 3 months. with regard to information about prevention pin site infection majority of subjects not heard information 52 (86.7%) and 8 (13.3%) had information . all the subjects had information from health personnel.

Table 3 shows the distribution of patients with external skeletal fixator according to level of knowledge regarding prevention of pin site infection before and after structure teaching programme. It revealed that is pre test , majority of the respondents 44 (73.33%) had inadequate knowledge, 13 (21.67%) had moderate knowledge and 3 (5%) had adequate knowledge regarding prevention of pin site infection. and in post test most of the respondents 42 (70%) had adequate knowledge and 18 (30%) had moderate knowledge regarding of pin site infection.

Table 1: Frequency and Percentage distribution of demographic variables of patients with external skeletal fixator. (n=60)

S. NO	Demographic variables	Frequency	Percentage (%)
1	**Age**		
a.	Below 20 yrs	7	11.7
b.	21-30 yrs	21	35.0
c.	31-40 yrs	15	25.0
d.	Above 40 yrs	17	28.3
2.	**Sex**		
a.	Male	43	71.7
b.	Female	17	28.3
3.	**Educational status**		
a.	Illiterate	5	8.3
b.	Primary education	16	26.7
c.	Secondary education	13	21.7
d.	Higher secondary education	17	28.3
e.	Graduate and above	9	15.0
4.	**Occupational status**		
a.	Unemployed	7	11.7
b.	Daily wages	13	21.7
c.	Government employee	16	26.7
d.	Private employee	19	31.6
e.	Business	5	8.3
5.	**Marital status**		
a.	Unmarried	24	40.0
b.	Married	29	48.3
c.	Divorced	3	5
d.	Widow / Widower	4	6.7
6.	**Family income per month**		
a.	Below and equal to Rs 3000	16	26.7
b.	Rs 3001-Rs 6000	17	28.3
c.	Rs 60001-Rs 9000	12	20.0
d.	Above Rs 9001	15	25.0

Table 2: Frequency and percentage distribution of clinical variable of patients with external skeletal fixator (n=60)

S. NO	Clinical variables	Frequency	Percentage (%)
1	**Types of fracture**		
a.	Simple	5	8.3
b.	Compound	55	91.7
2.	**Location of external fixator**		
a.	Upper extremities	11	18.3
b.	Lower extremities	49	81.7
3.	**Duration of application of external fixator**		
a.	Less than 1 month	23	38.3
b.	1-2 months	17	28.3
c.	2-3 months	13	21.7
d.	More than 3 months	7	11.7
4.	**Have you heard about prevention of pin site infection**		
a.	Yes	8	13.3
b.	No	52	86.7
	If yes sources of information (8)		
a.	Health personnel	8	100
b.	mass media	-	0
c.	Family members	-	0
d.	Friends and relatives	-	0

Table 3: Frequency and Percentage distribution of patients with external skeletal fixator according to the level of knowledge regarding prevention of pin site infection before and after structured teaching programme n=60

S. No	Level of knowledge	Respondents knowledge			
		Pre test		Post test	
		Frequency	Percentage	Frequency	Percentage
1	Inadequate (<50%)	44	73.3	-	-
2	Moderate (50-75%)	13	21.67	18	30
3	Adequate (>75%)	3	5	42	70
	Overall	**60**	**100**	**60**	**100**

Table 4: Range, Mean, Standard deviation and Mean score percentage of knowledge regarding prevention of pin site infection among patients with skeletal fixator before and after structured teaching programme n=60

S. No	Knowledge domains	Max score	Respondents knowledge							
			Pre test				Post test			
			Range	Mean	SD	Mean %	Range	Mean	SD	Mean %
1.	General information	7	2-6	3.07	1.07	40.7	4-7	5.47	2.63	78.0
2.	Pin site infection	4	1-3	1.37	0.64	34.1	2-4	3	0.76	75
3	Prevention of pin site care	15	3-14	6.62	3.80	44.0	8-15	12.25	1.54	81.6
4	General measures in prevention of pin site infection	6	1-4	2.70	0.69	44.9	2-6	4.32	1.13	71.9
Overall knowledge		**32**	**8.27**	**13.75**	**4.83**	**42.9**	**16-31**	**25.02**	**3.94**	**78.31**

The Table 4 shows Range, Mean, Standard deviation and Mean score percentage of knowledge regarding prevention of pin site infection among patients with skeletal fixator before and after structured teaching programme.

With regard to the general information about fracture and external fixation , out of maximum score of 7, the range was 2-6 in pre test and 4-7 in post, the mean score was found to be 3.07 in pre test and 5.47 in post test, with standard deviation of 1.07 and 2.63 and mean score percentage was 40.7 in pre test and 78.0 in post test .

In context with knowledge about pin site infection, out of maximum score of 4, the range was 1-3 in pre test and 2-4 in post test, the mean score was found to be 1.37 in pre test and 3 in post test, with standard deviation of 0.64 and 0.76 and mean score percentage was 34.1 in pre test and 75 in post test.

In relation to knowledge about prevention of pin site infection, out of maximum score of 15, the range was 3-14 in pre test and 8-15 in post test, the man score was found to be 6.62 in pre test and 12.25 in post test, with standard deviation of 3.80 and 1.54 and mean score percentage was 44.0 in pre test and 81.6 in post test.

With regard to knowledge about general measures in the prevention of pin site infection out of maximum score of 6, the range was 1-4 pre test and 2-6 in post test, the mean score was found to be 2.7 in pre test and 4.32 in post test, with standard deviation of 0.69 and 1.13 mean score percentage was 42.9 in pre test and 71.9 in post test.

The overall knowledge regarding prevention of pin site infection, out of maximum score of 32, the range was 8-27 in pre test and 16-31 in post test and mean score was found to be 13.73 in pre test and 25.02 in post test, with standard deviation of 4.83 and 3.94, mean score percentage was 42.9 in pre test and 78.1 in post test.

Table 5: Effectives of structured teaching programme knowledge regarding prevention of pin site infection among patients with external skeletal fixator n=60

S. NO	Aspects of knowledge	Max score	Enhancement				Paired 't' value	P-value
			Range	Mean	SD	Mean%		
1	General information	7	1-4	2.4	0.81	32.8	22.81*	P<0.001
2	Pin site infection	4	0-3	1.58	0.61	39.5	19.94*	P<0.001
3	Prevention of pin sit infection	15	1-9	5.5	2.40	36.7	17.64*	P<0.001
4	General measures in prevention of pin site infection	6	0-4	1.62	0.99	26.9	12.60*	P<0.001
Overall knowledge		**32**	**5-16**	**11.1**	**3.49**	**35.2**	**24.49***	**P<0.001**

Table 5 shows the findings of the study showed that t value (24.49) was highly significant at 0.001 level. Hence, it is inferred that structured teaching programme was effective in improving knowledge regarding prevention pin site infection among patients with external skeletal fixator.

Discussion

The findings of the study showed that the mean change between the pre test and post test score was found to significant in improving the knowledge regarding prevention pin site infection among patients with external skeletal fixator. The study shows the clinical variables of majority of subjects had compound fracture and lower extremities. majority of subjects 52 (82.6) had no information regarding pin site infection. The was a significant association with demographic variables such as educational status, and family income. In the clinical variables duration of external fixator and previous information regarding pin site infection was associated other rest of the variables was not associated.

The findings of the study was supported by a study conducted to identify possible risk factors in the care of skeletal pin site in order to produce guidelines for cost effective care. Data was collected related to fractured, injury characteristics, pin site appearance, reaction, incidence, pin site care and physiological status. The study suggested that there is a correlation between infection and age, time of operation, patient who smoke and nutritional status. The highest correlation of infection rik with infected pin site was low serum albumin, an indicator of poor nutritional status. The infection was 10.2% in patients with closed fractures and 10.7% in open or non union fractures [7].

Conclusion

The results of Present study showed that educating the patient with external skeletal fixator improve the knowledge regarding prevention of pin site infection. Its important educating the patient to prevent the complication and reduce the hospital stay.

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Received on 19.09.2016, **Accepted on** 24.09.2016 DOI: http://dx.doi.org/10.21088/ijsn.2277.467X.5316.2

IJSN
Volume 5, Number 3

A Study to Assess the Effectiveness of Preoperative Teaching on Leg Exercise and Early Ambulation, on Post-Operative Recovery of Patient Undergoing Selected Abdominal Surgeries in Selected Hospitals of Pune City

Lata Sukare

Abstract

An experimental study was conducted to assess the effectiveness of pre-operative teaching, on leg exercise and early ambulation, on post-operative recovery of the patient undergoing selected abdominal surgeries, in selected hospital of the Pune city. The research approach used for this was post- test only control group design. The total sample size was 60; experimental group 30 and control group 30. Tools and techniques used to collect data were Demographic data and observational checklist. The samples were divided randomly in experimental & control group. In experimental group preoperative teaching and demonstration on leg exercise and early ambulation was given and immediately re-demonstration was taken from patient. Postoperatively from 1st to 6th postoperative day, morning and evening observation for ability of performance and recovery was done in both groups. Analysis of data in both group revealed that preoperative teaching on leg exercise and early ambulation improves the postoperative ability of performance. It also promotes recovery by regaining independence, reducing pain, rapid wound healing, preventing complication, and reducing hospital stay.

Keywords: Preoperative teaching; Leg exercise; Early ambulation; Postoperative recovery; Abdominal Surgery.

Caring for perioperative client is a challenging and gratifying specialty. Over the last 20 years, dedicated researchers and practitioners have made tremendous advances in surgical intervention and postoperative care. Operations that were once considered last-resort measures are now termed routine. Any type of surgery is stressful for the client and their family. A client faces physiological and psychological stressors when confronting surgery. Surgery is traumatic. Any surgical procedure, however minor, carries some degree of risk. Anticipating surgery causes fear and anxiety for many clients, who tend to associate surgery with pain, possible disfigurement, dependence and perhaps even loss of life. These all factors affect postoperative performance level and recovery of client. Early ambulation after surgery has been significant factor hastening postoperative recovery and preventing postoperative complication.

Careful preparations of individuals undergoing surgery during the preoperative phase decreases operative risk and promote postoperative recovery. Systemic and structured preoperative teaching has proven benefits. Systemic and structured preoperative teaching and demonstration for a client's expected postoperative behaviors has positive influence on client's recovery. Therefore perioperative nurse has important role to provide structured preoperative teaching to client undergoing surgery.

Statement of the Study

"A study to assess the effectiveness of pre-operative teaching, on leg exercise and early ambulation, on post-operative recovery of the patient undergoing selected abdominal surgeries, in selected hospital of Pune city"

Background of the Problem

"If you come through your surgery in good shape, thank a perioperative nurse".

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Objective

1. To develop pre-operative teaching on leg exercise and early ambulation for patient undergoing selected abdominal surgery in the experimental group.
2. To implement leg exercise and early ambulation to patient undergone selected abdominal surgery in the experimental group.
3. To compare the effectiveness of leg exercise and early ambulation in experimental and control group.
4. To compare the effectiveness of leg exercise and early ambulation on postoperative recovery.
5. To compare the effectiveness of leg exercise and early ambulation with selected variable.

Conceptual Framework

Conceptual framework used for this study is based on the Pander's health promotion model. A health promotion model is a group of concepts that interact with another in order to promotehealth and achieve a goal.

The 1996 revision of the model add three new variables that serve to influence the individual to engage in health-promoting behaviors: activity related affects, commitment to plan of action and immediate competing demand and preferences.

Review of Literature

The review of literature for present study is categorized as follow:-

1. Literature related to postoperative complication.
2. Literature related to importance of leg exercise and ambulation.
3. Literature related to effectiveness of preoperative teaching.
4. Literature related to recovery.

Research Design

The research method adopted for the study waspost-test only control group design

The reason for selecting this design is that in this study pretest is not essential. Keeping in view the objectives of the study, the preoperative teaching and demonstration on leg exercise and early ambulation was given only to the experimental group. Finally post-test was conducted for both groups.

Variables

Independent Variable

The independent variable in this study was preoperative teaching and demonstration on leg exercise and early ambulation.

Dependent Variable

The dependent variable in this study is post-operativerecovery.

Hypothesis

The level of significance chosen for the study was 0.05.

H_0: There will be no significant difference in recovery between experimental group and control group.

H_1: There will be significant difference in recovery between experimental group and control group.

Setting of the Study

This study was conducted in four hospitals of the Pune city.

Population

The population of the present study comprises patient undergoing abdominal surgery.

Sample and Sampling Technique

The sample of the present study comprises patient undergoing selected abdominal surgery in selected hospitalsof city. The sampling technique used in this study was non-probability purposive method.

Every day a list of patients posted for abdominal surgery was made and all patients who met the criteria were selected. After selection they were divided in experimental group and control group by simple random technique.

Sample Size

Total sample size was 60. In that 30 patients were assigned in experimental group, and 30 were in control group.

Inclusion Criteria

1. Patients undergoing selected abdominal surgery

(Appendectomy, laparotomy, Cholecystectomy and hysterectomy), and with General anesthesia, Spinal anesthesia or epidural anesthesia.

2. Patient whose age group is between 18 to 60 years.
3. Duration of surgery not exceeding more than 6 hours and less than half an hour.

Exclusion Criteria

1. Patient who developed complication during surgery.
2. Patient with pre-existing acute medical problems like cardio-vascular disorders, orthopedic problems.
3. Patients with closed (Laparoscopic) abdominal surgery.
4. Critically ill patients.
5. Patients who were received preoperative teaching on leg exercise and ambulation during past surgery.
6. Patient who is on regular physiotherapy.

Data Collection Techniques and Tool

Techniques

The present study aimed at assessingthe effect of preoperative teaching on leg exercise and early ambulation, in terms of, skills and practice in performing leg exercise and ambulation of patient undergone selected abdominal surgery, and observing its effect on recovery. Thus, the observational checklist was prepared and used for data collection.

The investigator chooses the following technique in present study.

1. Sample was selected from operation list from ward who were posted for incisional abdominal surgery. Sample was divided into experimental and control group by simple random sampling.
2. Demographic data was collected from sample after taking consent.In experimental group Preoperative teaching with demonstration on leg exercise and early ambulation was given. Duration of teaching was 20–30 minutes. Immediately re-demonstration was taken from patient.
3. Postoperatively an observation technique was used to assess the ability of performing leg exercise and ambulation by the patients and its effect on early recovery, by various parameters (Activity of daily living, pain level, wound healing, complications and duration of hospitalization)

Tool

The investigator prepared the following tool for data collection; the tool was constructed according to the objectives of the study.

Section I: Demographic data of the samples.

Section II: Observational checklist consists of steps of procedure for ability of performance of leg exercise and early ambulation.

Part A – Leg Exercise

Total item –16

Total score –64

Part B – Ambulation

Total item – 4

Total score – 4

Section III: Observational Checklist for Assessment of Recovery.

It includes five parameters

Part A – Activity of Daily Living

Total score - 18

Part B- Pain

Pain score - 0

Part C – Wound healing

Total score – 12

Part D – Complication

Total score -5

Part E – Duration of Hospitalization after Surgery.

Total score - 3

Final Scoring for Recovery (Which Include all Five Parameters)

Total Score – 38

Excellent – 32-38

Good – 25-31

Satisfactory– 18-24

Poor – 11-17

Validity Report

The group of 15 experts did the content validity of tool from the field of nursing, surgery, medicine,

physiotherapy, education and statistics.

Reliability

To check the tool, reliability inter-rator Observation method was used. For reliability 10 samples were taken. For this study Cronbachs Alpha test was used. The result was as follow: -

- Section II (ability of performance)- 0.96
- Section III (Recovery) – 0.94

All result was more than 0.8, so tool was highly reliable.

Pilot Study

A sample of 10 patients was selected. Five were into experimental group and five were into control group. After pilot study no changes were made in study. The study was feasible.

Procedure for Data Collection

Formal administrative permission was obtained from four hospitals. The investigator approached the subjects & obtained the consent after assuring the subjects about confidentiality of the data. The data was collected through demographic profile, clinical profile. The samples were divided randomly in two groups that are experimental & control group. In experimental group preoperative teaching on leg exercise and early ambulation was given for 20-30 mins, demonstration was given and same time re-demonstration was taken from patient. Postoperatively from 1st to 6th postoperative day, morning and evening observation for ability of performance and recovery was done. In control group intervention was not given. Postoperatively from 1st to 6th postoperative day, morning and evening observation for ability of performance and recovery was done.

Table 1: Demographic description of samples by frequency and percentage

Demographic Data		Experimental Group		Control Group	
		Freq.	Percentage	Freq.	Percentage
Age	18-27	7	23.3	5	16.7
	28-37	7	23.3	4	13.3
	38-47	11	36.7	6	20.0
	48-57	2	6.7	7	23.3
	58-60	3	10.0	8	26.7
Sex	Female	18	60.0	23	76.7
	Male	12	40.0	7	23.3
weight	Average	4	13.3	1	3.3
	Normal	22	73.3	21	70.0
	Above Normal	4	13.3	8	26.7
Education	Illiterate	11	36.7	7	23.3
	Primary	2	6.7	5	16.7
	Secondary	10	33.3	7	23.3
	Graduate	7	23.3	9	30.0
	Post-graduate	0	0	2	6.7

Table 2: Demographic description of samples by frequency and percentage

Demographic data		Experimental Group		Control Group	
		Frequency	Percentage	Frequency	Percentage
Occupation	Business	0	0	2	6.7
	Service	4	13.3	5	16.7
	Farmer	7	23.3	2	6.7
	Laborer	0	0	0	0
	House wife	14	46.7	17	56.7
	Student	5	16.7	4	13.3
Income	Less than 2500	1	3.3	0	0
	2500-5000	23	76.7	1	3.3
	5000-7500	6	20.0	9	30.0
	Above 7500	0	0	20	66.7
	Appendectomy	8	26.7	7	23.3
Surgery	Laparotomy	6	20.0	10	33.3
	Hysterectomy	16	53.3	10	33.3
	Cholecystectomy	0	0	3	10.0
Type of Anesthesia	General	6	20	6	20
	Spinal	24	80	24	80

Analysis and Interpretation of Data

The collected data is tabulated, analyzed, organized and presented under the following headings.

Section I

- It deals with the analysis of the demographic data of the samples in experimental and control group.

Section II

It deals with the analysis of data related to ability of performance of leg exercise and earlyambulation in experimental group and control group

Table 3: Description of two-sample t-test for ability of perfomance in experimental and control group

	Experimental		Control		t value	DF	p-value	Significance
	Mean	S.D.	Mean	S.D				
Leg Exercise	30.27	3.71	56.43	2.48	32.08	51	<0.01**	Highly significant
Ambulation	1.83	0.64	3.79	0.27	15.59	39	<0.01**	Highly significant

Above Table 3 score shows that there is highly significance difference between experimental and control group for ability of performance of leg exercise and ambulation.

Section III

- It includes analysis of data related to recovery in experimental and control group. Recovery is assessed by following parameters.
  - Activity of daily living
  - Pain
  - Wound healing
  - Complication
  - Duration of hospitalization

Table 4: Description of paired sample t-test for activity of daily living in experimental and control group

Group		mean	S.D.	S.E.	T value	DF	p-value	Significance
Experimental	Day1	9.5	1.5	0..28	28.25	29	<.01**	Highly
	Day6	17.7	0.78	0.14				significant
Control	Day1	6.5	1.17	0.21	33.22	29	<.01**	Highly
	Day6	14.4	1.85	0.34				significant

Table 5: Description of paired sample t-test for severity of pain

Group		Mean	S.D.	S.E.	t	DF	p-value	Significance
Experimental	Day1	4.5	.94	0.17	31	29	<.01**	Highly
	Day6	0.4	0.56	0.10				significant
Control	Day1	5.7	1.2	0.22	20.28	29	<.01**	Highly
	Day6	1.2	.95	0.17				significant

Table 6: Description of paired sample t-test for wound healing

Group		Mean	S.D.	S.E.	t value	DF	p-value	Significance
Experimental	Day1	6.67	0.61	0.11	39.18	29	<.01**	Highly
	Day6	11.53	0.51	0.09				significant
Control	Day1	6.17	0.75	0.14	15.17	29	<.01**	Highly
	Day6	10.57	1.36	0.25				significant

Table 7: Description of paired sample t-test for complication

Group	Mean	S.D.	t value	DF	p-value	Significance
Experimental	5	0	1.44	29	0.08	Not significant
Control	4.93	.25				

Table 8: Paired sample t-test for duration of hospitalization

Group	Mean	S.D.	T	DF	p-value	Significance
Experimental	2.6	0.56	3.5	29	<.01**	Highly significant
Control	2.03	0.67				

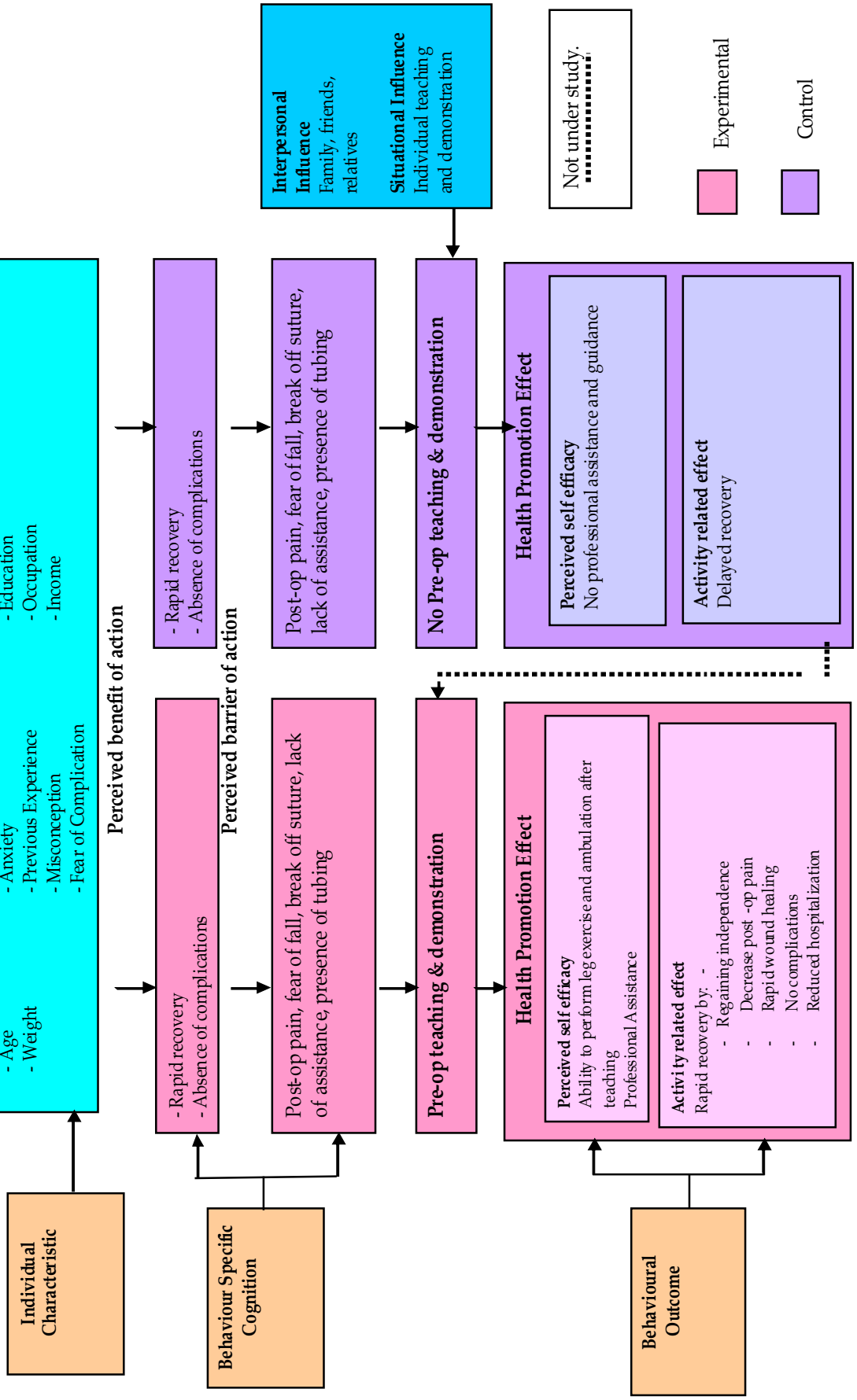

Fig. 1: Pander's health promotion model

Above finding shows that that activity of daily living are more effective in experimental group as compare to control group.

Above finding shows that experimental group has less pain as compare to control group.

Above finding shows that wound healing was effective in experimental group as compare to control group.

Above finding show that, there is no incidence of complication, in experimental as well as in control group.

Above finding shows that duration of hospitalization after surgery was reduced in experimental group as compare to control group.

Table 9: Frequency and percentage distribution of recovery in experimental and control group

Recovery	Experimental		Control	
	Frequency	Percentage	Frequency	Percentage
Excellent	0	0	0	0
Good	28	93.3	7	23.3
Satisfactory	2	6.7	23	76.7
Poor	0	0	0	0

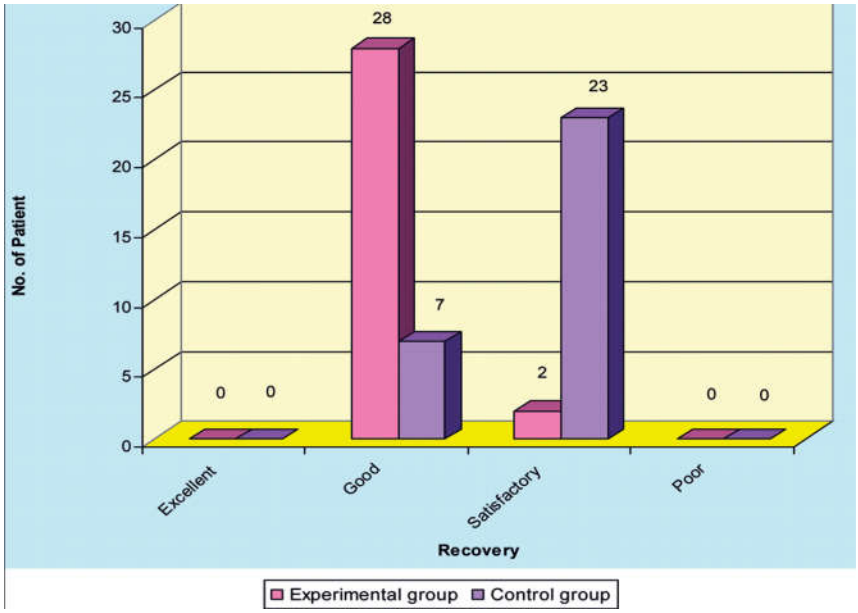

Fig. 2: Bar diagram comparing recovery in experimental and Control group

Table 10: Description of two-sample t-test for experimental and control groupfor recovery

	Experimental		Control		t value	DF	p-value	Significance
	Mean	S.D.	Mean	S.D				
Recovery	26.20	1.17	22.74	1.79	8.87	50	<0.01**	Highly significant

For recovery, mean score obtain by experimental group was 26.20, and S.D was 1.17, whereas mean score of control group was 22.74, and S.D was 1.79, the calculated 't' value is 8.87 which significantly higher than table value at 0.01. Above score shows that there is highly significance difference in recovery between experimental and control group. Hence null hypothesis is rejected and research hypothesis is accepted.

Section IV

- It includes analysis of data to find the association between ability of performance and selected demographic variables.
- It includes analysis of data to find the association between recovery and selected demographic variables.

In experimental group there is significant correlation between ability of performance and age, it also shows significant correlation between income and ability of performance.

In control group there is significant correlation between ability of performance and weight.

In experimental group there is significant correlation between recovery and occupation.

Discussion

A similar intervention program was designed by Lindeman C.A. and Aernam B.V . They determine the effect of structured preoperative teaching. They found that the experimental group scored higher in all postoperative activity, performance and exercise. The experimental group's average stay was 1.9 days shorter than the control group. The postoperative use of analgesics was shown to be lower in the experimental group.

In present study also postoperative ability of performance of leg exercise and ambulation was excellent as compare to control group. Findings of present study also show that experimental group scored highest in activity of daily living as compare to control group. The experimental group has moderate pain on the first day of surgery and by sixth day there was no pain, whereas in control group the pain was severe on the first day of surgery and it was continue even on sixth day after surgery. In present study there was no complication seen in experimental group, whereas in control group two patients developed wound infection. The average stay of experimental group was shorter as compare to control group.

Implications

The findings of the study have implications for perioperative nursing care practice, nursing education, nursing administration and nursing research.

Perioperative Nursing Care Practice

Nurses working in the surgical unit can benefit from such researches, as it will provide more insight regarding the preoperative and postoperative care of surgical patient. They should know the importance of the preoperative teaching to improve postoperative performance, to regain independence, to promote wound healing, to prevent complications and to reduce hospital stay.

Nursing Education

The nursing teachers can use the result of the study as an informative illustration for the students. Nursing education should help in inculcating values and a sense of responsibility in the students to provide preoperative teaching and demonstration to patient about postoperative care to promote performance, to prevent complication and to promote recovery.

Nursing Administration

The findings of the study should be used as a basis of in-service education programs for nurses so as to make them aware of importance of pre-operative teaching and demonstration to promote recovery.

Nursing Research

Nursing research is an essential aspect of nursing as it uplifts the profession and develops new nursing norms and a body of knowledge. Another research has been added to the Nursing literature. The research design, findings and the tool can be used as avenues for further research.

Limitations

The following points were beyond the control of the investigator:

1. The assessment of effect of the preoperative teaching is limited to postoperative observation done up to six days after surgery.
2. The study was limited to population that speaks English or Marathi.
3. The study was limited to patient undergone selected abdominal surgery in selected hospital of Pune city.
4. The study was limited to the experience level of the researcher.

Recommendations

Keeping in view the findings of the study, the following recommendations are made:

- A similar study can be done on a larger sample.
- A study can be conducted to assess the effectiveness of leg exercise and early ambulation on postoperative recovery of patient undergoing other surgeries.
- A study can be done on association between various demographic variables, which were significant, on larger samples

Conclusion

The purpose of the present study was to assess the effectiveness of preoperative teaching on leg

exercise and early ambulation on postoperative recovery of patient undergoing selected abdominal surgeries.

The present study can be justified on the fact that postoperative complications are very common in any type surgery most of them can be prevented if preoperative teaching and demonstration is given..

The post-test control group research design was used for the study, which consists of an experimental group and the control group. Each group consisted of 30 samples that were selected on the basis of the sampling criteria set for the study. The preoperative teaching and demonstration on leg exercise and early ambulation was given. Postoperatively the observational checklist for six days was prepared for observation of ability of performance and recovery for both groups.

Based on the objectives and the hypotheses the collected data was analyzed by using descriptive and inferential statistics.

The conclusion drawn from the findings of the study are as follows:

The 't' test done to find the effect of preoperative teaching on leg exercise and early ambulation on postoperative recovery of patient undergoing selected abdominal surgeries revealed that there is a significant difference in experimental and control group regarding ability of performance and early recovery. Preoperative teaching on leg exercise and early ambulation has shown a significant effect in improving their ability of performance after surgery and rapid recovery.

One of the important roles of nurse is to provide planned preoperative teaching, which helps to prevent complication. She can carry out teaching along with demonstration in best possible way to prevent complication and to hasten rapid recovery.

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Received on 25.08.2016, **Accepted on** 24.09.2016 DOI: http://dx.doi.org/10.21088/ijsn.2277.467X.5316.3

IJSN
Volume 5, Number 3

A Study to Identify the Incidence of Deep Vein Thrombosis among Major Orthopedic Surgical Patients in Selected Hospital at Chennai

K. Sathiya*, S. Nalini*, Lisy Josaph*, B. Venkatasan**

Abstract

Deep vein thrombosis occurs frequently as a postoperative complication, particularly after orthopedic surgery and increasing number of patients were referred to the outpatient clinic of vascular surgery. The aim of study was to identify the incidence of deep vein thrombosis among post operative major orthopedic surgical patients and to find out the association between the incidence of deep vein thrombosis with the selected background variables. The result revealed that Out of thirty subjects 20% subjects belongs to 10-30 years, 16.7% belongs to 31-40 years, 20% belongs to 41-50 years, 30% belongs to 51-60 years and 13.3% belongs to 60-100 years. With regard to sex 50% were males and 50% were females. As per the number of post operative day 6.7% subjects belong to first postoperative day and 13.3% belongs second POD, 23.3% belong third POD and 26.7% belong fourth POD and 30% belong fifth POD. According to duration of hospital 6.7% belong to 0-7 days, 43.3% belongs to one week to two weeks, 40% belongs to three to four weeks and 10% belongs above a month. The incidence of DVT by using Autar scale among post operative orthopedic surgical patients shows that 3.3% people have the low risk, 46.7% have moderate risk, 50% people have high risk of deep vein thrombosis. The mean and standard deviation of assessing the risk of deep vein thrombosis among post operative orthopedic surgical patients where the mean value was 17.36 and standard deviation was 2.17. there is a significant association between body mass index and the risk for deep vein thrombosis.

Keywords: DVT; High Risk; Orthopedics Surgery; Incidence and Post Operative Complication.

Introduction

Deep vein thrombosis is a condition in which the blood vessel is blocked by the embolus carried in the blood stream from the site of formation of clot. Thrombosis usually develops as a result of venous stasis or slow flowing of blood around venous valve sinuses.

Deep vein thrombosis is a silent killer. It is a serious threat to recovery from surgery and is the third most common vascular disease after ischemic heart disease and stroke. DVT is mostly preventable and national and international consensus groups on venous thrombus prophylaxis have all recommended that hospital patients should be assessed for clinical risk factors and overall of thromboembolism. Incidence of DVT in India 2.7 per 1000 person. Incidence of DVT in south India revealed that 45% to 85% in patients who have had no prophylaxis. DVT was determined in 50% of patient aged 50 years and more.

The risk of DVT is always high among orthopedic patients due to immobility and poor venous return of the body. DVT is more prevalent in major orthopedic surgeries, injuries, traction and plaster casts. All these factors lead to venous stasis and an increased likelihood of thrombosis. It was suggested that appropriate educational session regarding thrombo prophylaxis especially costless measures (physical exercise), use of pneumatic compression and compression stocking, would enable the patients to prevent the development of deep vein thrombosis.

The incident of DVT is very much higher in India. As a part of clinical requirement investigators are posted in orthopedics ward. We found that the immobility s is higher in orthopedic surgical patients. So investigators are interested to do the study to identify the incidence of deep vein thrombosis among orthopedic surgical patients.

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Materials and Methods

Research Design

A descriptive cross -sectional design was adopted to identify the incidence of deep vein thrombosis among major orthopedic surgery patients.

Setting of the Study

The study was conducted in selected Hospital at Chennai . It is one of the largest tertiary care hospitals in Tamil Nadu and in India providing multi disciplinary care, it is a 1717 bedded hospital with round o clock emergency services.

Population

The target population of this study was adult patients (male and female) with major orthopedic surgeries.

Sample and Sample Size

The subjects included for the study were 30 male and female patients with major orthopaedic surgeries, admitted in orthopaedics ward .

Sampling Technique

The samples were selected through convenient sampling technique.

Sampling Criteria

Inclusion Criteria

- Patients are willing to participate.
- Male and female with major orthopedic surgeries especially in lower limbs (Total hip replacement, total knee replacement, Open reduction of internal fixation, Open reduction of external fixation)

Exclusion Criteria

- Patients are not willing to participate.
- Patients with serious mental illness
- Patients with minor orthopedic surgeries

Description of Tools

The tool used was Autar deep vein thrombosis risk assessment scale. The instrument has two parts. Part-1 Consists of back ground and clinical variables. Part -2 Autar (1994) Deep vein thrombosis risk assessment scale.

Part-1

Section-A

Consist of demographic variables, Age, Sex, Occupation, and monthly income

Section-B

Consists of clinical variables, BMI, History of valvular diseases, type of surgery, Number of postoperative day, duration of hospitalization.

Part -2

Autar (1994) deep vein thrombosis risk assessment scale to assess the risk of deep vein thrombosis among the patients underwent major orthopedic surgeries. It consists of 8 categories. Age specific group, body mass index, mobility, special risk category, trauma risk, type of surgical interventions, high risk diseases.

Score Interpretation

A.	No risk	0-6
B.	Low risk	7-10
C.	Moderate risk	11-14
D.	High risk	15-30

Results

Section-1: Distribution of study related background variables among post operative major orthopedic surgical patients.

Section-2: Distribution of clinical variables among post operative orthopedic surgical patients.

Section-3: Distribution of each category of Autar scale among post operative major orthopedic surgical patients.

Section-4: Association between the selected background variables and the incidence category of deep vein thrombosis.

Section-1

Table I shows that The frequency and percentage distribution of demographic variables of patient undergone major orthopedic surgeries. Out of thirty

subjects 20% subjects belongs to 10-30 years, 16.7% belongs to 31-40 years, 20% belongs to 41-50 years, 30% belongs to 51-60 years and 13.3% belongs to 60-100 years. With regard to sex 50% were males and 50% were females. As per occupation 6.7% belongs to professional, 20% belongs to non professional, 43.3% belongs to daily wages and 30% belongs to house wife. According to monthly income of the family 23.3% earn around 1,000-5,000, 56.7% earn around 10,000-15,000 and 3.3% earn around 15,000-20,000.

Table 1: Frequency, percentage distribution of demographic variables (N=30)

Demographic variables	Frequency	Percentage
Age		
a)10-30 years	6	20.0
b)31-40 years	5	16.7
c)41-50 years	6	20.0
d)51-60 years	9	30.0
e)61-100 years	4	13.3
Sex		
a)Female	15	50.0
b)Male	15	50.0
Occupation		
a)Professional	2	6.7
b)Non-professional	6	20.0
c)Daily wages	13	43.3
d)Housewife	9	30.0
Monthly income in rupee		
a)< 5000	7	23.3
b)5001 -10000	17	56.7
c)10001-15000	5	16.7
d)15001-20000	1	3.3
e)>20000	-	-

Table 2: Frequency ,percentage distribution of clinical variables

Clinical Variables	Frequency	Percentage
Body mass index		
a)Underweight	2	6.7
b)Average	18	60.0
c)Overweight	10	33.3
d)Obese	-	-
e)Very obese	-	-
History of valvular disease		
a)Yes	2	6.7
b)No	28	93.3
Number of POD		
a)First	2	6.7
b)Second	4	13.3
c)Third	7	23.3
d)Fourth	8	26.7
e)Fifth	9	30.0
Duration of hospital		
a)<1week	2	6.7
b)1-2week	13	43.3
c)3-4week	12	40.0
d)>4weeks	3	10.0

Section-2

Table 2 shows that The frequency and percentage distribution of clinical variables of patient undergone major orthopedic surgeries. Based on history of valvular diseases 6.7% has the problem and 93.3% has no valvular diseases. As per the number of post operative day 6.7% subjects belong to first postoperative day and 13.3% belongs second POD, 23.3% belong third POD and 26.7% belong fourth POD and 30% belong fifth POD. According to duration of hospital 6.7% belong to 0-7 days, 43.3% belongs to one week to two weeks, 40% belongs to

three to four weeks and 10% belongs above a month. Based on body mass index 6.7% belongs to underweight, 60% belongs to average and 33.3% belongs to overweight.

Table 3: Frequency, percentage distribution of AUTAR SCALE

Autar Scale	Frequency	Percentage
Age specific group		
a)10-30	6	20
b)31-40	5	16.7
c)41-50	6	20.0
d)51-60	9	30.0
e)above 60	4	13.3
Body mass index		
a)Underweight	2	6.7
b)Average	18	60.0
c)Overweight	10	33.3
d)Obese	-	-
e)Veryobese	-	-
Mobility		
a)Ambulant	-	-
b)Limited (uses aids)	6	20
c)Very limited	10	33.3
d)Chair bound	1	03.4
e)Complete bed rest	13	43.3
Special risk category		
Oral contraceptive		
a)20-35yrs	1	3.3
b)35+yrs	2	6.7
Trauma risk		
a)Head injury	–	–
b)Chest injury	–	–
c)Spinal injury	–	–
d)Pelvic injury	8	26.7
e)lower limb injury	22	73.3
Surgical intervention		
a)Minor surgery	–	–
b)Major surgery	–	–
c)Emergency major surgery	–	–
d)Thoracic	–	–
e)Abdominal	–	–
f)Urological	–	–
g)Neurosurgical	-	-
h)Orthopedic	30	100
High risk disease		
a)Ulcerative colitis	–	–
b)Anaemia:Sickle cell	–	–
Polycythaemia		
Haemolytic		
c)Chronic heart disease	7	23.3
d)Myocardial infarction	–	–
e)Malignancy	–	–
f)Vericose vein	3	10
g)Previous DVT or CVA	–	–

Section-3

Table 3 shows that frequency and percentage of variables in DVT assessment scale (Autar scale). Out of thirty subjects 20% subjects belongs to 10-30 years, 16.7% belongs to 31-40 years, 20% belongs to 41-50 years, 30% belongs to 51-60 years and 13.3% belongs to 60-100 years. Based on body mass index 6.7% belongs to underweight, 60% belongs to average and 33.3% belongs to overweight. As per mobility status 0% belongs to ambulant, 20% belongs to limited mobility status, 33.3% belongs to very limited(needs help), 3.4% are chair bound and 43.3% belongs to complete bed rest. In a special risk category especially for females 3.3% belongs to 20-35 years and, 6.7% belongs to 35 years above and both are oral contraceptive users and 90% belongs to no oral contraceptive users.

According to trauma risk category 26.7% belongs

to pelvic injury and 73.3% belongs to lower limbs Injury and 100% subjects were belongs to orthopedic surgical interventions According to high risk diseases 23.3% has chronic heart diseases and 10% has varicose veins and 66.7% subjects have no high risk diseases.

Section-4

According to incident risk assessment of DVT by using Autar scale among post operative orthopedic surgical patients shows that 3.3% people have the low risk, 46.7% have moderate risk, 50% people have high risk of deep vein thrombosis.

Table 4: Frequency, percentage distribution of DVT risk assessment score interpretation by using Autar scale

Risk Category	Frequency	Percentage
No Risk(<6)	0	0
Low Risk(7-10)	1	3.3
Moderate(11-14)	14	46.7
High Risk(>15)	15	50

Table 5: Mean, standard deviation of the incidence in deep vein thrombosis among post operative major orthopedic surgical patients by using Autar DVT risk assessment scale

Variables	Mean	Standard Deviation
Incidence of deep vein thrombosis among post operative major orthopedic surgical patients	17.36	5.26

Table 6: Association between the selected background variables and the incident category of deep vein thrombosis.

Demographic variables	Frequency	Chi square & P value
Age		
a)10-30 years	6	
b)31-40 years	5	11.4
c)41-50 years	6	9.49
d)51-60 years	9	Significant
e)61-100 years	4	
Sex		
a)Female	15	0.132
b)Male	15	3.84
		N.S
Occupation		
a)Professional	2	6.11
b)Non-professional	6	7.81
c)Daily wages	13	N.S
d)Housewife	9	
Monthly income in rupee		
a)< 5000	7	
b)5001 -10000	17	4.12
c)10001-15000	5	7.81
d)15001-20000	1	N.S
e)>20000	-	

Table 7: Association between the selected clinical variables and the incident category of deep vein thrombosis.

Clinical Variables	Frequency	Chi square & P value
Body mass index		
a)Underweight	2	5.9
b)Average	18	5.9
c)Overweight	10	significant
d)Obese	-	
e)Very obese	-	
History of valvular disease		2.14
a)Yes	2	3.84
b)N0	28	N.S
Number of POD		
a)First	2	1.74
b)Second	4	9.49
c)Third	7	N.S
d)Fourth	8	
e)Fifth	9	
Duration of hospital		
a)<1week	2	2.32
b)1-2week	13	7.81
c)3-4week	12	N.S
d)>4weeks	3	

The mean and standard deviation of assessing the risk of deep vein thrombosis among post operative orthopedic surgical patients where the mean value was 17.36 and standard deviation was 2.17.

Table 6 shows that there is a significant relationship between age factor and the incident of deep vein thrombosis.

Table 7 shows that there is a significant association between body mass index and the risk for deep vein thrombosis.

Discussion

The present study was undertaken to identify the incidence of deep vein thrombosis among post operative major orthopedic surgical patients. The study was conducted in Sri Ramachandra hospital. The findings of the study are discussed under the following objectives.

The first objective of the study was to identify the incident of deep vein thrombosis among post operative major orthopedic surgical patients.

Table 4 depicts that the distribution of incidence of deep vein thrombosis among orthopedic patients undergone with major orthopedic surgeries in inpatient orthopedic department 3.3% subjects had low risk of deep vein thrombosis and 46.7% subjects had moderate level risk of deep vein thrombosis and 50% subjects had high risk of deep vein thrombosis.

The second objective of the study to determine the association between the incidences of deep vein thrombosis with selected background variables

Table 6 depicts that there is a significant association between the age factor and the incidence of deep vein thrombosis among postoperative major orthopedic surgical patients.

Table 7 shows that there is a significant association between the body mass index level and the incidence of deep vein thrombosis

Recommendation for Future Study

1. Same study can be done in larger sample
2. Study can be conducted through various setting
3. Study can be conducted in a various population

Conclusion

The study was conducted to identify the incidence of deep vein thrombosis among post operative major orthopedic surgical patients in inpatient orthopedic department in selected hospital at Chennai. The findings reveal that majority of the people had the high risk of deep vein thrombosis and other people had mild to moderate risk of deep vein thrombosis.

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Received on 12.09.2016, **Accepted on** 24.09.2016 DOI: http://dx.doi.org/10.21088/ijsn.2277.467X.5316.4

IJSN
Volume 5, Number 3

A Study to Assess the Quality of Life among Patients with Chronic Renal Failure on Regular Hemodialysis in a Selected Hospital at Chennai

K. Kavitha*, M. Malarvizhi*

Abstract

Onset of chronic illness requires adjustment in lifestyle in prolonging life and improves the quality of life. Patients with end stage renal disease are faced with complicated and demanding treatment regimen that include dietary and fluid restrictions and medication schedule and regular dialysis they can lead a near normal life provided that they have the good quality of life. Hence the investigator assessed the Quality of life of patients with chronic renal failure on regular hemodialysis in the different aspects of physical, physiological, psychological, social and spiritual, to assess the overall level of quality of life, and to associate the level of quality of life of chronic renal failure patients with selected demographic variables. A descriptive design was chosen to assess the quality of life of patients with chronic renal failure with the help of a standardized questionnaire, data was collected and analyzed using inferential statistics. The findings revealed that in physiological aspects 58% patients were in poor quality of life, in physical status 56% patients were in moderate quality of life, in psychological aspects 58% patients were in moderate quality of life, in social aspects 80% patients were in moderate quality of life, and in spiritual aspects 78% patients were in moderate quality of life. The study concluded that 92% of patients were having moderate quality of life, only 4% of patients were having poor quality of life and 4% of patients were having good quality of life.

E-mail: Chronic illness; Chronic renal failure; Hemodialysis.

Introduction

Bones can break, muscles can atrophy, glands can loaf, even brain can go to sleep without immediate danger to survival; but should the kidney fail, neither bone, muscle, glands or brain could carry on". This statement underlines the importance of kidneys in our lives. Adequate functioning of the kidneys is essential for the maintenance of a healthy kidney. If there is complete kidney failure and treatment is not given, death is inevitable. Modern information and scientific evidence have give persuasive evidence that there is more kidney disease that had been actually thought. Developed countries worldwide treat over 1000.000 individuals yearly and as many as 25,000 new cases each year. In the U.S and the Netherlands, it is estimated that 6.5-10% of general population suffer from some degree of kidney disease and therefore at increased risk of preventable cardiovascular disease and renal failure [National Kidney Foundation, 2006]. Our two kidneys with their 1 million filtering units keep our internal environment of salt and water in a wonderfully precise balance, allowing all our cells, tissues and organs to function well, with the exception of acute renal failure, a potentially reversible condition caused by severe dehydration, obstetrical complications, toxic medications or toxic venoms. Kidney disease usually begins silently unless brutally announced by severe pain of a stone in the ureter. Mostly kidney disease reveals itself as a rise in blood pressure, fluid retention in the legs and around the eyes, development of anemia and a gradual feeling of illness [National Kidney Foundation, 2006].

Renal failure affects every body system and solely compromise nutritional status. Unable to rid itself of excess fluid, the body swells and electrolyte and acid-base balance are disrupted. As renal failure

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progresses, build up of toxic wastes in the blood precipitates a complex interplay of symptoms known as uremic syndrome. The patient develops fatigue, weakness, muscular twitches, muscle cramps, nausea, vomiting, stomatitis, itchy skin and unpleasant taste in the mouth. In later stages, GI ulcers and bleeding common [Gallher, 1990]. Dialysis is a therapeutic procedure used in acute and chronic renal failure to lower the blood level of metabolic waste products and toxic substances and to correct abnormal electrolyte and fluid balances [Phipps, 1999].

Early detection and treatment are the keys to keeping kidney diseases from progressing to kidney failure. Simple tests that can be done to detect early kidney diseases are blood pressure measurement testing protein in urine and serum blood creatinine. If the patient is in high-risk group such as elderly diabetic, hypertensive or have a family history of kidney disease, they must undergo routine tests to determine early disease. [National Kidney Foundation, 2002].

The holistic treatment of a patient requires the health care team to assess what is most important for that individual. In some cases, it is not possible to attain complete freedom from the signs and symptoms of a disease. In those cases, the goal is to achieve quality of life which is as good as possible despite the diseases. Also in people who have suffered disabilities or lost psychological or physical skills it is important to to emphasize the positive aspects of what has been lost.Quality of life is an important concept and has proved difficult to define, because it has many meanings. Draper (1997) suggests that quality of life may vary depending on whether it is used as an objective measure to evaluate the general social policy and make a decision about how to allocate scare resources or whether it is used as a subjecting measure to evaluate the effects of nursing practice or medial treatment at the level of the individual. For most nurses, it is the later aspect of Quality of life that is particularly salient.

Nursing is an essential health service for person whose Quality of life is greatly or irreversibly affected because of serious disruption of integrated functioning. The Would Health Organization (WHO) 1974 focused on quality of life. So it has been considered as an issue of psychological importance for the chronically ill. The modern technological advancements in the treatment of Chronic renal failure patients on heamodialysis have increased their life expectancy and highlighted the psychological aspects and physical conditions. This study is concerned with the nature and effects of these stressors [Physical, physiological, psychological, social and spiritual] and their treatment and care of the individual as a whole.

The Statement of the Problem

A study to assess the 'Quality of life" of patients with chronic renal failure on regular hemodialysis in a selected hospital at Chennai.

Aim of the Study

To assess the level of normal functioning in relation to physiological, physical, psychological, social and spiritual aspects of chronic renal failure patients.

Objectives

The specific objectives of the study are

- To assess the level of quality of life of patient's who are undergoing heamodialysis in the regarding physical, physiological, psychological, social and spiritual domain of life.
- To associate the level of quality of life of chronic renal failure patients with selected demographic variables.

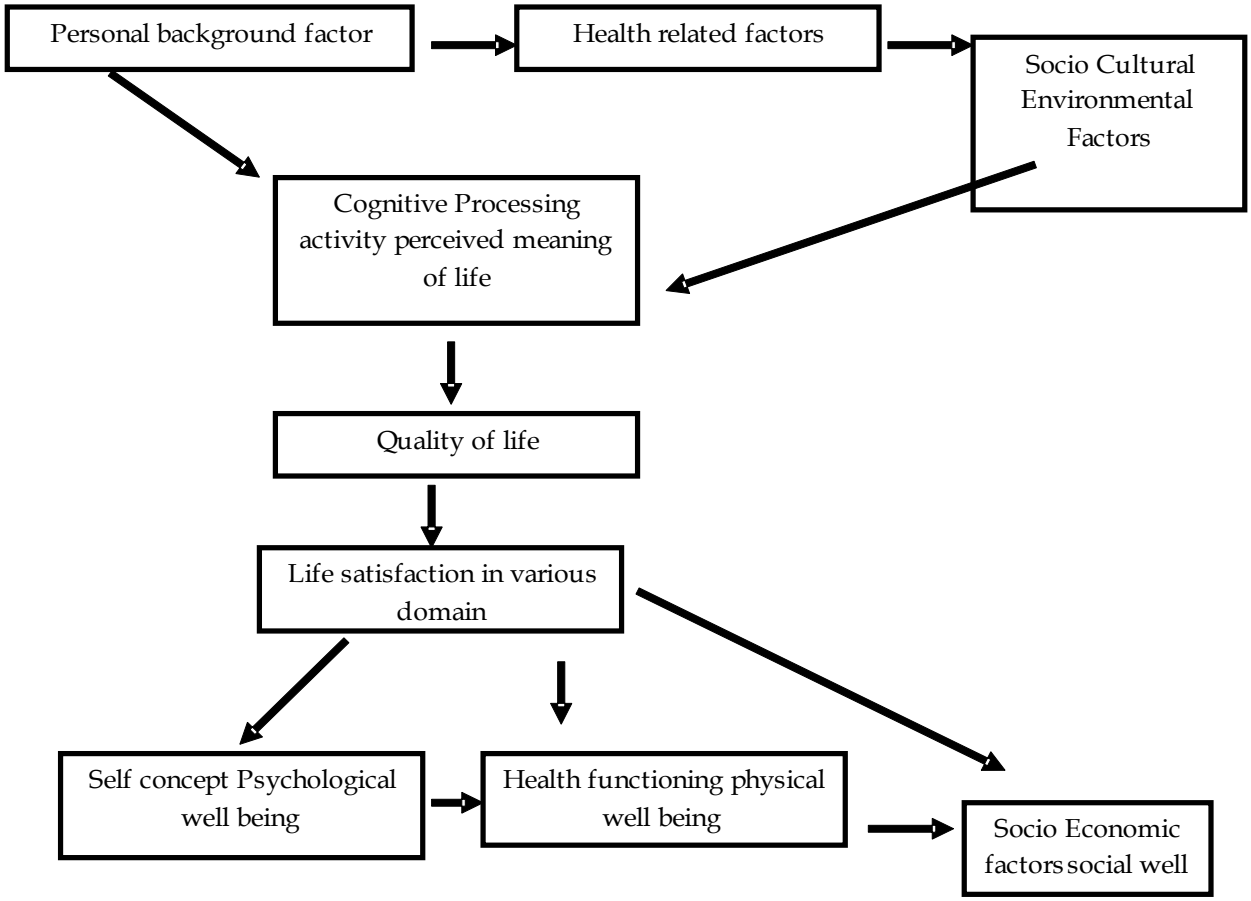
Conceptual Framework Model

The conceptual framework of this study is based on Linzhan's model of quality of life (1992). She described that quality of life is determined by life satisfaction in various domain of the life which are interrelated. Self concept, physical health, socio-economic factors and perceived meaning of life of an individual determines the quality of life. It is an abstract concept which is the sum total of the effects of intrapersonal and interpersonal factors acting on the individual.

Life Satisfaction

Life satisfaction is influenced by personal background, environment and health functioning status. Therefore an understanding of the external condition and influencing factors is essential for nursing interventions to enhance the individuals satisfaction with life. A report of life satisfaction is essentially the cognitive assessment of one's progress toward desired goal, implying a judgment based on cognitive experiences. It refers to life as a whole rather than to specific domains of life experiences.

Conceptual Framework Based on Linzhan's Model of Quality of Life



Review of Literature

The primary purpose of reviewing relevant literature is to gain broad background knowledge or understanding of the information that is available and relevant to the research problem of interest.Quality of life during the 1980's the multidimensional concepts of quality of life has generated a growing focus for research. De Haes & Van Knippenberg (1987) states that life has come to the fare front in health care with the growing realization that the well-being of patients is an important consideration when treating them for cure & sustainment of life. The first attempt of visualize quality of life was done by WHO (1947) by defining "health as a stall of complete physical, mental, social well being and not merely an absence of disease or infirmity". Karofsty (1949) who first discussed quality of life studied the performance status & satisfaction of patients who were on long treatment chronic diseases have become the focus of attention in the field of health care. LEE AJ, et,al. (2005) Conducted a study comparative to assess the health related quality of life in patients with kidney failure who had received transplant and receiving haemodialysis. The study was conducted at the university hospital of wales, using SF-36 and the kidney disease quality of life questionnaire[KDQOL] from the KDQOL there were significantly higher for dialysis. Patients compared with renal transplant patient. Kidney failure has a high cost in terms of health related quality of life. Haemodialysis should be the treatment of choice for kidney failure.

Methodology

A descriptive survey research design was chosen for this study, as it would bring forth all necessary information. The study was conducted at selected Hospital, Chennai which is multispeciality 350 bedded hospitals with outpatient department facilities. The dialysis unit consists of 12 dialysis machines with the required equipments. Three qualified doctors, five nurses, 12 technicians and 6 attenders are working here and the department is headed by a Nephrologist patients were coming for hemodialysis as out patients twice or thrice in a week,

stays for four to five hours to under go hemodialysis and went back home. During, pre and post dialysis vitals are monitored. Weight was checked before, after dialysis for each patients. The population of this study consisted of all patients with chronic renal failure undergoing regular hemodialysis in the hemodialysis unit of the selected hospital. The sample consisted of 50 patients with chronic renal failure on regular hemodialysis in the selected hospital.Criteria for selection of the sample.Chronic renal failure patients who underwent regular heamodialysis, Between the age group 30 to 60 years who had heamodialysis,Clients who were willing to participate ,Clients on heamodialysis for 6 months or more and Clients who were able to read and understand Tamil and English. Development and description of the instrument ,the instrument developed was which has two parts. The demographic details of patients were it included, age, sex, educational status, occupation, marital status, monthly income, place of living, type of family, duration of chronic renal failure, and period of dialysis. Modified kidney disease quality of life short-form [KDQOL.SF] questionnaire was used to assess the level of quality of life of patients with chronic renal failure on regular hemodialysis. The standard questionnaire, the KDQOL SF-36 Item that can be used to formally assess the different aspects of quality of life [WHO 1976]. And was modified by the researcher for the study purpose into 4 four point

Table 1: Frequency and Percentage distribution of Demographic variables among patients

Demographic variables	(n=50)	
	No.	%
Age in years		
21-30	15	30
31-40	12	24
41-50	20	40
51-60	3	6
Gender		
Male	28	56
Female	22	44
Education		
Secondary and above	21	42
Primary	18	36
Illiterate	11	22
Marital Status		
Married	33	66
Unmarried	17	34
Occupation		
Employed	21	42
Daily wages	13	26
self-employed/Retired	16	32
Income (Rs./ month)		
1000-3000	3	6
3001-6000	15	30
6001-9000	19	38
>9001	13	26
Type of family		
Joint	24	48
Nuclear	26	52
Residence		
Rural	28	56
Urban	22	44
Family history		
No	24	48
Yes	26	52
Duration of treatment		
1-3 years	4	8
4-6 years	17	34
>7 years	29	58
History of co-morbid illness		
Diabetes	32	64
Hypertension	11	22
Diabetes and Hypertension	7	14
Others	-	-

scale, which consists of 25 negative and 25 positive statements of quality of life. The responses were stated as always, frequently, rarely and never. The score interpretation for the response were as follows. The total minimum score was 50 and maximum score was 200. Based on the scoring the percentage of scoring and interpreted as follows:

Quality of Life -76% and above – Good Quality of Life (Scoring 154–200), 51% to 75%- Moderate Quality of Life (Scoring 101–150) and 26% to 50%- Poor quality of life (Scoring 50–100). The data collection procedure was after obtaining permission from the head of the Department of Nephrology and the Nursing superintendent, the main study was conducted from 50 hemodialysis patients were selected using convenient sampling criteria selected for the study. The data collected were analyzed using descriptive statistics.

Major Findings of the Study

Table 1 describes the frequency and percentage distribution of demographic variables of chronic renal failure patients. 20 (40%) of them were in the age group of 41 to 50 years. 28 (56%) of them were male patients. 26 (52%) of them had significant family history of renal illness. 29 (58%) of them was on dialysis more than 7 years. 32(64%) of them had history of diabetes has their co-morbid illness.

Figure 1 revealed that in physiological aspects 58% patients were in poor quality of life, in physical status 56% patients were in moderate quality of life, in psychological aspects 58% patients were in moderate quality of life, in social aspects 80% patients were in moderate quality of life, and in spiritual aspects 78% patients were in moderate quality of life.

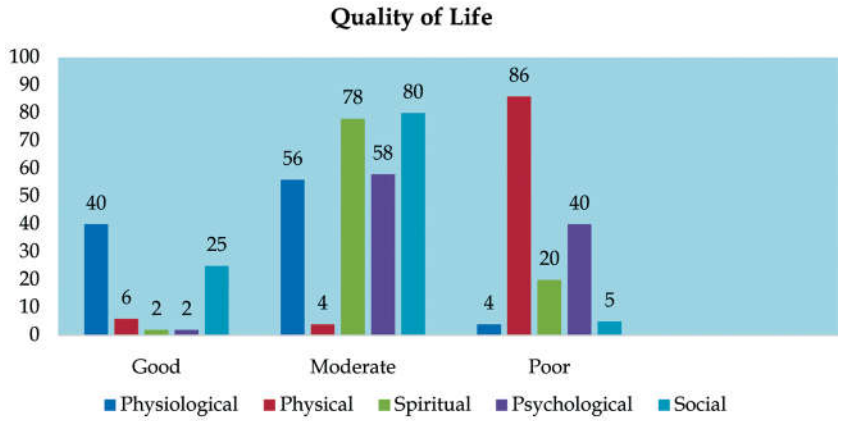


Fig. 1: Level of Quality of life among patients with chronic renal failure who is on hemodialysis (n=50)

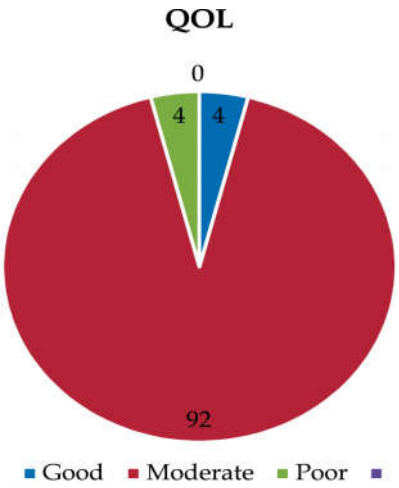


Fig. 2: Percentage of overall Quality of life among patients with Chronic renal failure (n=50)

The study concluded that 92% of patients were having moderate quality of life, only 4% of patients were having poor quality of life and 4% of patients were having good quality of life.

Conclusion

The findings of the study were consistent with the literature and supported by the studies conducted around the world. Based on the method of selection, sample size and support from many studies conducted throughout the world, the findings could not be generalized to the patients with chronic renal failure. Hence larger sample size is needed to generalize the level of quality of life among patients undergoing hemodialysis. Weisbord S.D et al. (2005) conducted a study to assess symptoms and their relationship to quality of life and depression. The illness effects questionnaire and Beck Depression

Inventory were used to evaluate quality of life and depression, A total of 162 patients from three dialysis units were enrolled. Mean age was 62%, 48% were black, 62% were men, and 48% had diabetes. The median number of symptoms was 90. Dry skin, fatigue, itching and bone/joint pain each were reported by >33% of patients. Physical and emotional symptoms are prevalent can be severe, and are correlated directly with impaired quality of life and depression in maintenance hemodialysis patients. A standard assessment of symptoms into the care provided to maintenance hemodialysis patients may provide a means to improve quality of life in this patient population.

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Received on 19.09.2016, **Accepted on** 24.09.2016 DOI: http://dx.doi.org/10.21088/ijsn.2277.467X.5316.5

A Patient Safety: Preventing Pressure Ulcers

IJSN
Volume 5, Number 3

Vasantha Kalyani*, S.K. Mohanasundari**

Abstract

With today's critical nursing shortage, it is no surprise that there would be an increase in hospital-induced pressure sores given the complexity of this issue. Although nurses may complain there is not enough time to get everything done due to an overwhelming workload. Equally important to consider is that proper treatment be implemented routinely and consistently in accordance with the institution's policy and procedure manual. The responsibility ranges from the chief nursing officer to the bedside nurse to make sure treatment plans are implemented and evaluated. A skin care plan to prevent tissue injury in patients at risk for developing pressure sores and to promote wound healing in patients with existing breakdown must be developed. The staff must be involved in planning, implementing, and evaluating the skin care plan for it to be effective.

Keywords: Pressure Ulcer; Patient; Safety; Prevention**.**

Introduction

Skin is the Human body's largest organ it is Body's first line of defense. it function as Protector, Regulator, Sensor, Metabolism and Communicator. Pressure ulcer is the commonest problem which arises when tissue injury, ischemia and tissue necrosis has been occurred. It is prevalent in bedridden patient. Meticulous skin care is needed to prevent this condition. Earlier days Pressure ulcer also called as decubitus ulcers or bed sores.

Definition

According to *The National Pressure Ulcer Advisory Panel (NPUAP)* pressure ulcer is a localized injury to the skin and/or underlying tissue usually over a bony prominence, as a result of pressure, or pressure in combination with shear and/or friction that leads to tissue injury, ischemia, and tissue necrosis.

Incidence

Around 70% occur in people over 65 yrs, 2-6 times greater risk of mortality, 95% it occur lower body, in sacrum(65%) and heal (30%) and Shoulder, heel, and ear were the favorite sites of newly developed Pressure ulcer.

Factors Causing Pressure Ulcer

They from in the bony prominences like occiput, ear, scapula elbow, sacrum ischial tuberosities, grater trochander, medial condyle of tibia, fibular head, medial malleolus, lateral mallelous and heal.

Intrinsic factors	Extrinsic factors
Malnutrition and dehydration	Friction
Critical illness	Shear
Bedridden/wheel chair.	Dryness
Incontinence	Moisture
Age/Fragile skin	Pressure
Chronic diseases	
Infection, 0besity	
Smoking	

Pathology

Unrelieved pressure on the skin squeezes tiny blood vessels, which supply the skin with nutrients and oxygen. When the skin is starved for too long, the tissue dies, and a pressure ulcer develops

Pressure sores (bed sores) are an injury to the skin and underlying tissue. They can range from mild reddening of the skin to severe tissue damage-

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and sometimes infection-that extends into muscle and bone. Pressure sores are described in four stages:

- At *Stage 1* sores are not open wounds. The skin may be painful, but it has no breaks or tears. The skin appears reddened and does not blanch (lose color briefly when you press your finger on it and then remove your finger). In a dark-skinned person, the area may appear to be a different color than the surrounding skin, but it may not look red. Skin temperature is often warmer. And the stage 1 sore can feel either firmer or softer than the area around it.
- At *stage 2*, the skin breaks open, wears away, or forms an ulcer, which is usually tender and painful. The sore expands into deeper layers of the skin. It can look like a scrape (abrasion), blister, or a shallow crater in the skin. Sometimes this stage looks like a blister filled with clear fluid. At this stage, some skin may be damaged beyond repair or may die.
- At *stage 3*, the sore gets worse and extends into the tissue beneath the skin, forming a small crater. Fat may show in the sore, but not muscle, tendon, or bone.
- At *stage 4*, the pressure sore is very deep, reaching into muscle and bone and causing extensive damage. Damage to deeper tissues, tendons, and joints may occur.

In stages 3 and 4 there may be little or no pain due to significant tissue damage. Serious complications, such as infection of the bone (osteomyelitis) or blood(sepsis), can occur if pressure sores progress.

Lindan et al documented ranges of pressure applied to various anatomic points in certain positions.-The points of highest pressure with the patient supine included the sacrum, heel, and occiput (40-60 mm Hg). With the patient prone, the chest and knees absorbed the highest pressure (50 mm Hg). When the patient is sitting, the ischial tuberosities were under the most pressure (100 mm Hg). Obviously, these pressures are greater than the end capillary pressure, which is why these are the areas where pressure ulcers are most common.

Risk Factors for Pressure Ulcers

Certain groups of patients have a higher risk for developing pressure ulcers. These include:

- Patients who are older adults (those over age 65 are at high risk and those over age 75 are at even greater risk)
- Patients in critical care.
- Patients with a fractured hip (an increased risk for heel pressure ulcers).
- Patients with spinal cord injuries (spasticity, the extent of the paralysis, a younger age at onset, difficulty with practicing good skin care, and a delay in seeking treatment or implementing preventive measures increase the risk of skin breakdown).
- Individuals with diabetes, secondary to complications from peripheral neuropathy.
- Individuals who are wheelchair- or bed-bound.
- Patients who are immobile or for whom moving requires significant or taxing effort (i.e., morbidly obese).
- Patients who struggle with incontinence.
- Patients with neuromuscular and progressive neurological disesases (i.e., multiple sclerosis, ALS, Myasthenia gravis, stroke).

Etiology

Hypothermia

- Hyperthermia;
- Chemical substance (e.g., incontinence);
- Mechanical factors (e.g., friction, shearing forces, pressure, restraint);
- Physical immobilization;
- Humidity;
- Extremes in age;
- Moisture;
- Radiation;
- Medications.
- *Internal*
- Impaired metabolic status;
- Impaired nutritional status (e.g., obesity, emaciated);
- Impaired circulation;
- Impaired sensation;
- Altered pigmentation;
- Skeletal prominence;
- Developmental factors;
- Immunological deficit;
- Skin turgor alterations (change in elasticity);
- Impaired fluid status.

Clinical Manifestations

1. Rounded, crater like shapes with regular edges.
2. Usually dark regular base that do not bleed easily.
3. Over bony prominences, but can take on the shape of the bone.
4. Foul odor from ulcer.
5. Warm/swollen skin.
6. Fever, weakness, and confusion.

Pressure Ulcers are Graded or "Staged" to Indicate the amount of Tissue Damage

- Stage-1:Reddened area of skin
- Stage-II. Blister/Open Sore
- Stage –III: Crater (bowl shaped depression on surface)
- Stage-IV: Damage to muscle or bone

Risk Assessment Scale

Braden Scale

Criteria	Score			
	1	2	3	4
1. sensory perception	Unresponsive	Responsive to pain stimuli	Response to verbal commends	No impairment
2. Moisture	Constantly moist	Often moist but not always	Occasionally moist	Rarely moist
3. Activity	Bed fast	chair fast	Walk occasionally	Walks frequently
4. Mobility	Completely immobile	Very limited	Slightly limited	No limitations
5. Nutrition	Very poor	Probably adequate	Adequate	Excellent
6. friction and shear	Problem	Potential problem	No apparent problem	

Score and Interpretation

Criteria	Score
Very high risk	9 or less
High risk	10-12
Moderate risk	13-14
Mild risk	15-18
No risk	19-23

Norton Scale

Criteria	Score			
	4	3	2	1
Physical condition	Good	Fair	Poor	Very bad
Mental condition	Alert	Apathy	Confused	Stupors
Activity	Ambulant	Walks with help	Chair bound	Bed fast
Mobility	Full	Slightly impaired	Very limited	Immobilized
Incontinence	None	Occasionally	Usually urinary	Urinary and fecal

Score and Interpretation

Score	Criteria
>18	low risk
14-18	medium risk
10-14	high risk
<10	very high risk

Nursing Management

Assessment Pressure Ulcer

Systematic Skin Assessment (SSA): Every time you change, help to the toilet, dress, bathe, transfer, and/ or turn a resident... you have a chance to check and care for a resident's skin.

What to Look for on the Skin: An area of skin that is noticeably different than the surrounding area. It may look red, and the redness does not "fade" when the skin is touched, and released (blanched). For residents with darker skin, the skin may look darker or lighter than the surrounding skin. Skin may look a little red, blue, or purple in color. When you check a resident's skin, be sure to have good lighting.

Another thing to Try: Gently feel for a change in skin temperature, it may feel warmer or cooler than the surrounding area. A "suspicious area" may feel "spongy" or "raised".

Prevention of Pressure Ulcers

Reduce the of Risk Factor

- Inspect daily and Keep skin clean and dry
- Reposition residents at least every two hours

- Keep linen dry and free of wrinkles and objects that cause pressure to the skin.
- Clean urine and feces from skin as soon as possible.
- Make sure clothing and shoes do not bind or constrict.
- Pat skin dry when bathing; never scrub.
- Encourage adequate nutrition and fluids.
- Massage pressure points when the resident is repositioned.
- Report any changes in skin condition immediately.

SSKIN a 5 Step Model for Prevention of Pressure Ulcers IS:

S- Surface

S- Skin inspection

K- Keep moving

I- Incontinence/moisture

N- Nutrition and Hydration

Five Pillow Rule for Prevention of Pressure Ulcers:

1. Pillow 1 under legs to elevate heel.
2. Pillow 2 between ankles if on side.
3. Pillow 3 between knees if on side.
4. Pillow behind the back (unless you are using the Turn and position unit).
5. Pillow 5 under the head.

Treatment of Pressure Ulcer

1. Pressure management.
2. Cleaning and dressing wound.
3. Wound debridement.
4. Other interventions.
5. Surgery.

1. Pressure Ulcer Management

Regular Repositioning

In order to decrease the risk, it is important to reduce the time and amount of pressure the patient is exposed to.

All patients must have their positions changed on a regular schedule. How often this is done is determined by each patient's activity/mobility level, general medical condition, overall treatment plan, skin condition, and support surface.

Frequent small position changes, rather than completely turning the patient, is faster, easier, and safer for all. Any change in position is beneficial. The patient need only be tilted to the side, no more than 30 degrees, with pillows or wedges to help support and reduce the pressure over bony prominences. A small pillow behind the shoulder or the hip alters position without having to move the entire body. Bending the knee alters the pressure on the sacrum and hip. A small pillow behind the heel will elevate the heel off the surface and prevent pressure.

When a patient is moved, it must be done in a way so as to prevent friction and shearing, as these forces will cause skin injury as readily as pressure.

- Always use a lift sheet or lift equipment to reposition the patient.
- The patient must be lifted, not dragged, while repositioning, which also means more than one person may be needed to move the patient. Pulling or dragging the patient will cause skin damage due to friction.
- Maintain the head of the bed at or below 30 degrees (or the lowest degree of elevation allowed based on the medical condition) to prevent the body from sliding down and causing a shear-related injury .
- Lower the head of the bed one hour after meals or intermittent tube feedings. If this is not possible, the sacral region will need to be checked even more frequently for possible injury.

When moving a patient, always use good body

mechanics and request help when needed. Have the patient assist in moving by using overhead trapeze bars. Even if the patient can only hold onto the bar, some of the weight will be reduced, making it easier and safer to move the patient. After the patient has been repositioned, be sure that he or she is not lying on a medical device, such as tubes or drains, and make sure the linens are smoothed.

Using Support Surfaces

Support surfaces on beds and chairs are used, however, to more evenly distribute body-weight pressure and to help reduce pressure to any one area of the body.

Types of Support Surfaces

- *Replacement Mattresses:* Mattresses with pressure-reducing features placed on an existing bed frame in place of a standard mattress.
- *Overlays:* A support surface placed on top of a standard mattress; made of foam, water, gel, air, or a combination.
- *Foam:* A thick slab of foam with a textured surface placed on top of a standard mattress to reduce pressure by surrounding the body; should be at least 3–4 inches thick to be effective at reducing pressure (2 inches is for comfort only).
- *Water:* A vinyl mattress or overlay with sections filled with water to distribute pressure more evenly and create a flotation effect.
- *Gel:* Made of a thick fluid that conforms to the contours of the body.
- *Air:* A vinyl mattress or overlay inflated with a blower to reduce pressure; powered or dynamic mattresses have a pump that inflates the mattress sections in an alternating cycle.
- *Low–air loss:* A mattress or overlay with controlled air-flow sections.
- *Air-fluidized:* Uses a high rate of blown air to fluidize fine particulate material (such as silicone beads) to "float" the patient on the surface.

Skin moisture from incontinence is a risk factor for pressure ulcer development. Water saturates the skin, which increases the risk that friction and shearing will result in erosion of the skin. The ammonia in urine raises the skin's pH, which promotes growth of pathogenic bacteria, disrupts the protective acid mantle, and activates fecal enzymes. Fecal enzymes damage the skin, allowing the gastrointestinal bacteria to cause infections. These result in a condition called incontinence-associated dermatitis (IAD). In and of itself, IAD is not a pressure ulcer. But if unrelieved pressure is added to IAD, the odds are five times higher that a pressure ulcer will develop. Proper cleansing and protection of the skin are the basis of prevention of IAD.

1. Cleanse the skin gently with a pH-balanced cleanser at each incidence of soiling.
2. Protective products with dimethicone, petroleum, or zinc oxide are recommended for patients with fecal incontinence or both urinary and fecal incontinence to protect against IAD.
3. Select underpads or incontinence briefs that are absorbent to wick moisture away from the skin instead of those that trap the moisture against the skin.
4. Pelvic Floor Muscle Training (PFMT): a program of repeated pelvic floor muscle contractions.
5. Scheduled toileting (i.e., timed voiding): monitoring and then matching of the individual's typical toileting schedule.
6. Habit retraining: identifying the individual's natural voiding pattern and developing an individualized toileting schedule.
7. Prompted voiding: establishing a routine in which a caregiver suggests voiding and provides assistance as needed.

Managing Nutrition

Malnutrition is associated with overall morbidity and mortality. Thus, assessing the patient's nutritional status must be part of the total assessment for pressure ulcers. A nutrition assessment should be performed upon admission and whenever there is a change in the patient's condition that puts him or her at risk for malnutrition.

Nutrition Assessment Parameters

- Current weight and usual weight.
- History of unintentional weight loss or gain (>5% change in 30 days or >10% change in 180 days).
- Body mass index (BMI).
- Food intake.
- Dental health.
- Ability to chew, swallow, and feed oneself.
- Medical and/or surgical history that influences intake or absorption of nutrients.
- Drug/food interactions.

- Psychosocial factors that can affect food intake.
- Ability to obtain and pay for food.
- Facilities for cooking and eating.
- Food preferences.
- Cultural and lifestyle influences on food selection.
- Over 65 years of age.

- Patients who are capable of shifting their weight every 10 minutes should be encouraged to do so.
- Reposition every 2 hours in case of bed ridden. After repositioning use a pillow to support the new position in the bed or chair.
- Heels elevated off mattress supported by pillows under the legs.
- Use a pillow to keep the knees and heels from rubbing together.
- Patients who are bedbound should be positioned at a 30° angle.
- Use draw sheet and trapeze if possible to decrease friction.
- Do not position, if possible, over area of break down.
- NEVER massage reddened areas (this is friction and will increase break down)
- Keep in mind heel pads and elbow pads prevent FRICTION not PRESSURE.
- Use Lift sheets, Trapeze, Heel and elbow pads, Moisturizers, Hydration, Transparent dressings and Skin sealants to prevent friction.
- Anti-shear mattress, lift sheets, elevating bed for 30 degrees, using pillows or wedges, using, turning and Positioning system can prevent shear.
- Wound management

Cleaning and Dressing Wound

- Stage I (not broken): gently wash it with water and mild soap and pat dry.
- Stage II (open sore): gently wash it with saline solution each time the dressing is changed.
- Dressing choice includes: films, gauzes, gels, and hydro cellular foams dressing.
- A combination of dressing may be used.

Wound dressings are a central component of pressure ulcer care. The selection of the dressing for the ulcer is very important and based on many parameters, such as:

- Presence of infection or necrosis.
- Size, depth, and presence of undermining or tunneling.
- Location.
- Drainage.
- Condition of the surrounding skin.
- Goals for healing.
- Individual or caregiver needs, such as pain reduction or odor control.
- Cost/reimbursement of the dressing.
- Availability.
- Ease of use.

(WOCN, 2010)

Maintaining a moist wound is a primary factor in dressing selection. If the ulcer is draining a large amount, then a dressing that will absorb but not dry out the wound is needed. If the ulcer has minimal drainage, then a dressing that replaces moisture and/or doesn't allow the ulcer to dry out is needed.

The "dead" space inside the wound needs to be filled so that the dressing is in contact with the wound bed, including any tunneling or undermining. A wound should not be stuffed with the dressing material; stuffing the wound puts pressure on the inside of the wound and will prevent exudate from draining out.

Dressings are changed based on the amount of drainage: a heavily draining wound will need to be changed often, while a minimally draining wound can be changed less than daily. There are many dressings available today to help maintain the correct environment to allow healing. It is important to follow manufacturer recommendations for the use of the product (Hess, 2013).

Examples of Dressing Types for Pressure Ulcers

Hydrocolloid (e.g., Duoderm): A type of dressing containing gel-forming agents applied to a foam or a film, which form an absorbent, self-adhesive, waterproof occlusive wafer. These dressings are used in stage II ulcers in body areas where they will not roll or melt. They are also used for autolytic debridement. Expect the formation and/or collection of drainage under the wafer. This does not indicate infection but is a property of the product. Do not use on infected or heavily draining wounds or wounds in which the dressing needs to be changed more than three times per week. Remove carefully.

Transparent Film: Can be used to protect body areas

at risk for friction injury. Can be used for autolytic debridement. May be used as a secondary dressing to hold in other dressings. Remove carefully.

Hydrogel: Water or glycerin-based gel, impregnated gauzes, and sheet dressings used to add moisture to a wound. Generally, these dressings are used on shallow, minimally draining ulcers. They are covered with a secondary dressing.

Alginate: These are used in moderately and heavily draining ulcers. Cover with a secondary dressing.

Foams: Used in draining stage II and shallow stage III ulcers. They absorb drainage and protect the wound.

Gauze: A cotton or synthetic weave that is absorptive and permeable to water, water vapor, and oxygen. Gauze may be impregnated with petrolatum, antiseptics, or other agents. Gauze should not be used in clean ulcers, as they are labor-intensive to use, cause pain when removed if dry, and will dry out a wound. However, if no other dressing is available, the use of gauze that is kept continually moist is preferable to dry gauze. Moist gauze can be used to loosely fill a cavity wound and one with undermining and tunneling.

Negative Pressure Wound Therapy (NPWT)

These mechanical systems include a vacuum pump, drainage tube, and dressing set. The use of NPWT has been associated with increased rates of healing in stage III and IV pressure ulcers. Necrotic tissue must be debrided prior to using NPWT. Follow manufacturer guidelines for use.

Antimicrobial Dressings

Silver-Impregnated Dressings

An antimicrobial dressing used in ulcers that are infected or at high risk for infection. The silver is incorporated into foam, alginate, and other dressings. The silver is activated when it comes in contact with wound fluid. Consider discontinuing use when infection is controlled and/or drainage reduces significantly. Can turn tissues a dark color. Do not use in patients allergic to silver.

Honey-Impregnated Dressings

FDA-approved manuka honey is used for antimicrobial effects and can be effective on antibiotic-resistant bacteria while promoting healing. Used in stage II, III, and IV ulcers. Assists in debridement. Do not use in patients allergic to bees or honey.

Cadexomer Iodine

An antimicrobial dressing containing iodine that absorbs drainage and matter from the wound surface, and as it becomes moist, the iodine is released. Used in moderately to highly draining wounds. Do not use in patients with iodine sensitivity or thyroid disease. Difficult to use in large-cavity wounds.

Impregnated Gauze Dressings

A gauze dressing impregnated with polyhexethylene biguanide that provides a barrier to bacteria and inhibits the growth of bacteria in the dressing, thus protecting the wound and potential spread of bacteria from the wound. Used in place of plain gauze.

Many of the advanced dressings do not need to be changed daily, which reduces pain, time, and expense. Follow manufacturer directions.

Wound Debridement

- Surgical debridement.
- Mechanical debridement.
- Autolytic debridement.
- Enzymatic debridement.

The object of treatment is to reproduce (to the best of one's ability) the normal environment of the exposed tissue of the wound. The normal environment of all tissue and cells, with the exception of the epidermis, is warm, dark, moist, and protected. In order to heal any wound, including pressure ulcers, some basic principles need to be followed. These are:

- Remove necrotic tissue.
- Treat infection.
- Fill dead space.
- Maintain a moist wound environment.
- Protect the wound from infection, trauma, and cold.

Some of these principles will require medical intervention; others, good clinical care. By following these principles, caregivers will provide the wound with the environment it needs to heal.

Debridement: Removing Necrotic Tissue

Removing necrotic tissue is the critical first step when healing the ulcer is the goal. By removing dead tissue, bacteria and the risk for infection are decreased as well as drainage and odor. Removing

these materials may also contribute to the release of available growth factors in the wound, thus allowing the cells to multiply and heal the wound.

The removal of necrotic tissue is called debridement, of which there are several types. The most appropriate type of debridement will depend on the patient's overall condition and goals of care. Factors to consider include the status of the ulcer; the type, quantity, and location of the necrotic tissue; the presence or absence of infection; pain tolerance; the care setting; and professional accessibility (EPUAP/NPUAP, 2009).

Removing the necrotic tissue will often reveal the true size of the ulcer and the damage done—the "iceberg" effect. The patient and family should be educated that the ulcer will look worse after debridement and that the ulcer cannot heal without debridement.

Surgical

Performed by a surgeon at the bedside or in the operating room, surgical debridement is the quickest way to remove extensive necrotic tissue, undermining, and tunneling. The benefits of surgical debridement in the presence of advancing cellulitis, crepitus, fluctuance, and/or sepsis secondary to ulcer-related infection usually outweigh the risks. However, relative contraindications include anticoagulant therapy, bleeding disorders, and immune incompetence. If the necrotic ulcer is on a limb, a thorough vascular assessment is conducted prior to debridement to rule out arterial insufficiency. The NPUAP recommends against debridement of stable, hard, dry eschar in ischemic limbs.

Conservative, sharp debridement—as opposed to surgical debridement—may be performed by specially trained, competent, qualified, and licensed healthcare professionals consistent with local, legal, and regulatory statutes. Sharp debridement removes only loose, easily identifiable necrotic tissue.

Autolytic

This method allows the body to break down necrotic tissue by using its own enzymes and defense mechanisms. Autolytic debridement is accomplished with the use of occlusive dressings such as hydrocolloids and films. These dressings help maintain a moist wound environment, reduce pain, and provide a barrier to infections. The dressing is left on for a few days, allowing the accumulation of fluids and enzymes at the site. The dressing is removed, the wound cleansed, and new dressing applied. This method takes time but is effective.

Chemical

This method involves the use of enzyme debriding agents. These agents break down necrotic tissue without affecting viable tissue. The enzyme product is applied daily to the necrotic tissue and then covered by a dressing. Enzymes are by prescription only, and currently only one is available on the market.

Biosurgical

This method uses sterilized bottlefly maggots, which debride the wound by dissolving dead and infected tissue with their digestive enzymes (in other words, the maggots eat the dead tissue). The maggots also disinfect the wound by killing bacteria. This in turn stimulates the growth of healthy tissue.

Mechanical

Mechanical debridement utilizes physical forces to remove necrotic tissue.

In the past, the most common type of mechanical debridement was the use of wet-to-dry dressings and whirlpools, but wet-to-dry dressings are no longer recommended. In this method, wet gauze is applied to the wound and necrotic tissue is allowed to dry and then forcibly removed without re-wetting. The gauze will have stuck to the necrotic tissue, thus removing it when the gauze is removed. However, this method is nonselective in that healing tissue will also be removed, thus re-traumatizing the wound bed and causing significant pain. The use of whirlpools has also fallen out of favor due to the difficulty in assuring the equipment is free of pathogens before its use on the next patient.

High-pressure wound irrigation is now used with commercially available devices, such as pulsatile lavage units. A lower-pressure method to debride tissue is to use a 35-ml syringe with a 19-g needle held a few inches from the wound. Care must be taken to minimize splashing and exposure to wound drainage. Infection control precautions should be followed.

Other Interventions

- Pain management.
- Antibiotics.
- Topical application of Insulin drops.

- Granulated sugar.
- Electrotherapy.
- A healthy diet.
- Management of incontinence.
- Muscle spasm relief.
- Negative pressure therapy (vacuum assisted closure).

Surgery

- Stage III & IV with exudates : flap reconstruction.

Complications

- Sepsis. .
- Cellulitis.
- osteomylitis
- Arthritis .
- Cancer.

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[9] National Statistics Online—Trends in suicide by method in England and Wales, 1979-2001. www.statistics.gov.uk/downloads/theme_health/HSQ 20.pdf (accessed Jan 24, 2005): 7-18. Only verified references against the original documents should be cited. Authors are responsible for the accuracy and completeness of their references and for correct text citation. The number of reference should be kept limited to 20 in case of major communications and 10 for short communications.

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