



A Study on the Effectiveness of a Structured Information Booklet on Patients & Caregivers Knowledge, Attitude and Practice Regarding Prevention of Complications Due to Immobilisation

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Abstract

Introduction: Immobilization is a most common treatment provided to injured patients admitted to the orthopedic. Immobilized patients have the highest risk of complications and death associated with it.

Objective: 1.To assess the level of knowledge, attitude, perception and practice of immobilized patients and their care givers regarding prevention of complications following their immobilization. 2.To find the relationship between the different areas of the knowledge domain regarding complications of immobilization between the primary care givers and the patients.

Methodology: Type of study: A cross sectional, hospital based study.

Statistical Analysis: The data after collection, compilation was analyzed by SPSS.

Observation & Discussion: About 66(64.08%) of patients had inadequate knowledge about different aspects of immobilization and its complication. 57(55.34%) had inadequate knowledge on different aspects of immobilization for prevention of complication. 2% of caregivers were only aware about pharmacological thrombophlebitis but very less i.e. 1.2% was aware about relevant information on VTE. Out of 103 caregivers (98% were family members and 2% unrelated) filled up the questionnaire which enquired about the issues related to pressure ulcer prevention & treatments. In the pretest only 3.5% individuals knew actually what pressure ulcer was, 2.3% of caregivers were aware about the cause of pressure ulcer and 95% were not able to identify the risk factors of pressure ulcer.

Introduction

Immobility means impairment or inability to move or even change in position of the body independently or movement of any medical cause or reason is restricted. Immobilization is a most common practice in injured patients admitted to the orthopedic ward as inpatient and it is one of

the best modality of treatment for recovery. However, it is seen that immobilized patients have the highest death complications. The main cause of injury requiring immobilization is mainly due to road traffic incidents. Road traffic incident in India in the year 2016 was 4,80, 652 and fatalities was 3% during the same period¹. Venous

thromboembolism (VTE), which includes (DVT) deep vein thromboembolism, pulmonary thromboembolism, pressure ulcer are the complications of long periods of immobilization in the hospital and may be serious cause of mortality and morbidity. This impact is preventable if appropriate strategies on VTE and pressure ulcer prevention, early ambulation, reporting of the warning danger early signals of VTE is timely adopted and addressed.

An orthopedic patient is more vulnerable to the side effects of long term immobilization hence this particular study was undertaken with the following aims and objectives:

Objective

1. To assess the level of knowledge of immobilized patients and their care givers regarding prevention of complications following their immobilization.
2. To assess the attitude, perception and practice of immobilized patients and their care givers regarding prevention of complications following their immobilization.
3. To find the relationship between the different areas of the knowledge domain regarding complications of immobilization between the primary care givers and the patients.
4. To disseminate developed information booklet cum guide on different aspects of prevention of complication of immobilization in orthopedic patients.

Methods

Type of study: A cross sectional, hospital based with interventional approach was done to meet the objectives of this study.

Place of study: Department of Orthopedics, VIMSAR, Burla, Odisha.

Period of study: May 2015 to April 2018.

Study participants: This study was conducted in the department of Orthopedics and included 103 patients who were admitted in the department of Orthopedics at VIMSAR, Burla and who were advised absolute bed rest and so labeled as

bedridden. A total 103 patients fulfilled the study criteria. All the patients were immobilized due to fracture pelvis or multiple fractures or spinal injury and so had undergone treatment as surgical procedure or were on conservative cast management.

Study Criteria: The patients and care givers of immobilized patients who were willing to cooperate and undertake the interventional study of assisted self directed learning by a developed information guide cum booklet. The informed consent was taken from the patients as well as care givers. A proforma was developed by which data was collected regarding different variables like age, sex, socio demographic profile diagnosis at admission, area of residency, education, socio economic status, duration hospital stay. Questions on different aspects of immobilization like basic concepts, role of a care giver, recording of vital signs, feeding, bed making, diaper change, posture change, physiotherapy, administration of medication was evaluated.

The data was compiled; tabulated analyzed and different statistical methods were applied.

Exclusion criteria

- All ambulatory patients i.e., who get out of bed without assistance
- Terminally ill patients
- Patients in whom immobilization was not required and their care givers

Study tool: A structured information booklet cum guide was prepared in consultation with faculties of Orthopedics, Neurology and Physiotherapy. The schedule cum questionnaire was prepared and validated by a faculty of Orthopedics, Neurology at VIMSAR, Burla. The booklet comprised of general concept of immobilization and the reasons for the occurrence of the common complications, methods to be adopted for prevention of different complications. There are different scales and standards in health care of chronically ill patients which resulted in improvement of pressure ulcer preventions and treatment in institutional care. However, awareness and preparation of family members and their care givers is essential who

will provide home care after discharge from the hospital. So there was a need for preparation and implementation of an educational intervention for these immobilized patients and their care givers. This study also highlights the need to strengthen the role of an information booklet to provide patient education about VTE.

Statistical Analysis: The data after collection, compilation was analyzed by SPSS.

Observation

Table-1 Different Aspects of knowledge domain regarding immobilization and its complication among participants

Different aspects of immobilization & its complications	Patient (Correct response)	Care giver (Correct response)
Basic concept of immobilization		
Yes		
No		
Awareness about DVT		
Yes		
No		
Awareness about pulmonary immobilization		
Yes		
No		
S/S of DVT		
Different prevention modalities of DVT		
Heard about venous thromboembolism		
Friends		
Family member		
Health care provider		
Media		
Aware about drugs given to prevent thrombophlebitis		
Yes		
No		
Aware about risk factors of DVT		
Yes		
No		
Chance of development of pulmonary embolism in patient with DVT		
Yes		
No		
Duration of absolute stay in bed in directly related to DVT		
Yes		
No		
Treatment of VTE – decreasing venous stasis by physiotherapy of leg exercise, leg elevation		
Yes		
No		

Elastic stocking necessary		
Yes		
No		
Contracture of muscle		
Muscle atrophy due to disuse of joint/ muscle		
Yes		
No		
Heard about Risk factors of contractures / muscle atrophy		
Yes		
No		
Joints to be placed at neutral portion		
Yes		
No		
Immobilization can lead to decrease in bone mass		
Yes		
No		
GI Complication		
Loss of appetite		
Decreased peristalsis, decreased intake of fluids		
Decrease in fat stores and glucose tolerance		
Complications		
Pressure ulcer		
Most common site (location)		
Risk factors of pressure ulcer		
Mode of prevention		
Treatment of pressure ulcer		
Ulcer type		
2 hourly position change in bed		
Care of the skin, bladder, bowel		
Need of early rehabilitation		
Passive mobilization Exercises		
Necessity of medical care and rehabilitative care		

Out of the total 103 patients, about 34% (35) of them belonged to 61yrs and above whereas amongst caregivers of patients 33(32%) belonged to (31-40) yrs of age. Regarding the gender, there was male predominance in patients as well as amongst caregivers. The education amongst caregivers was 28.16% till primary school level. Regarding occupation about 17 caregivers i.e. 16.5% were doing private service whereas about 26(25.25%) of patients were unskilled laborer by profession. (table-2)

Table 2 Socio-demographic variables of study subjects and their caregivers

Sl. No.	Demographic Variable	Patient (n=103)		Care Giver (n=103)	
		No	%	No	%
1.	Age in Years				
	20 – 30	7	6.79	22	21.36
	31 – 40	20.	19.42	33	32.01
	41 – 50	20	19.42	7	6.79
	51 – 60	21	20.39	21	20.39
	61 and above	35	33.98	20	19.42
2	Gender				
	Male	72	69.91	72	69.91
	Female	31	30.09	31	30.09
3.	Educational Qualification				
	Illiterate	22	21.36	19	18.45
	Just literate	06	5.83	10	9.71
	Primary	27	26.21	29	28.16
	Secondary	14	13.59	15	14.56
	Higher Secondary	23	22.33	16	15.53
	Graduate and above	11	10.68	14	13.59
4.	Occupation				
	Unemployed	17	16.50	12	11.65
	Labour class	12	11.65	18	17.46
	Skilled	17	16.50	30	29.13
	Unskilled	26	25.25	14	13.59
	Private (Semi)	12	11.65	17	16.50
	Government (Semi)	06	5.83	8	7.77
	Self employed	13	12.62	4	3.88
5.	Marital Status				
	Married	57	55.34	41	39.81
	Unmarried	46	44.66	62	60.19

Table 3 Frequency distribution of the study subjects on their level of knowledge regarding prevention of complication

Sl. No	Knowledge score frequency	No	%
1	Adequate (21 – 40)	37	35.92
2	Inadequate (0 – 20)	66	64.08
	Total	103	

Table-3 depicts the different knowledge scores amongst patients. About 66(64.08%) of patients had inadequate knowledge about different aspects of immobilization and its complication.

Table 4 Frequency distribution of the care giver on their level of knowledge regarding prevention of complication

Sl. No	Knowledge domain score	No	%
1	Adequate (21 – 40)	46	44.66
2	Inadequate (0 – 20)	57	55.34
	Total	103	

Table-4 provides information about the frequency distribution of the caregivers on the level of

knowledge regarding prevention of complication. It was ascertained that 57(55.34%) had inadequate knowledge on different aspects of immobilization for prevention of complication.

Table 5 Percentage distribution of patients on the level of practice regarding prevention of complications

Sl. No	Practice Skills score	No	%
1	Adequate (16– 30)	33	32.04
2	Inadequate (0 – 15)	70	67.96
	Total	103	

Table 6 Percentage distribution of the care giver on the level of practice regarding prevention of complication

Sl. No	Practice Skills score	No	%
1	Adequate (16– 30)	38	36.89
2	Inadequate (0 – 15)	65	63.11
	Total	103	

Table 7 Mean Rank order & spearman’s correlation of coefficient ‘r’ of different levels of knowledge domain areas in regard to complication following immobilization between the patients & their care givers.

Different complication due to immobility	Patient		Care Giver		Spearman’s correlation of coefficient ‘r’
	Mean	Order	Mean	Order	
Concept of immobilization	7.40	1	7.30	1	0.87*
Pressure score / ulcer	1.60	6	2.80	6	
Deep Vein thrombosis (DVT)	1.21	7	2.60	7	
Hypostatic pneumonia	3.41	4	3.97	5	
Constipation	3.27	5	4.10	4	
Contractures	5.81	2	5.99	3	
G.I. complication	5.19	3	6.10	2	

It is significant at 0.05 level of significance

Table 8 Type of Fracture / Injury of patients admitted and in need of immobilization

Type of fracture / Injury in patients	No.	%
#Pelvic Bone	20	19.42
Comminuted # of long bone	8	7.77
# Vertebra	18.	17.48
#Pelvis + long bone	23	22.33
#Pelvis & #Vertebra	25	24.27
Spinal Injury	9	8.73
Total	103	100(%)

Table 9 Type of spinal Injury patients admitted to the ward

Type of Spinal Injury	N=9	100(%)
Cervical Spine	2	22.22
Thoracic	1	11.11
Lumbar	4	44.45
Thoraco lumbar	2	22.22

Figure 1 Percentage Distribution of Patients admitted in Orthopedic ward with duration of immobilization

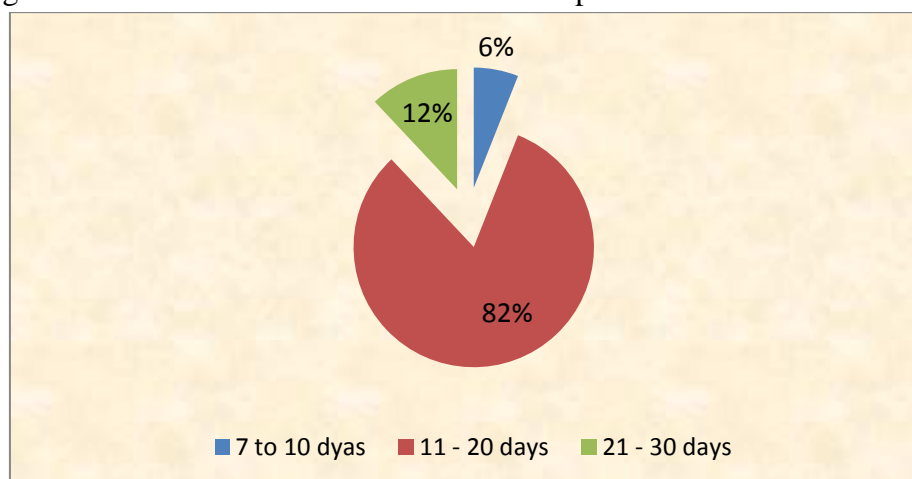


Figure 2: Percentage distribution of patients on the attitude regarding prevention of complications.

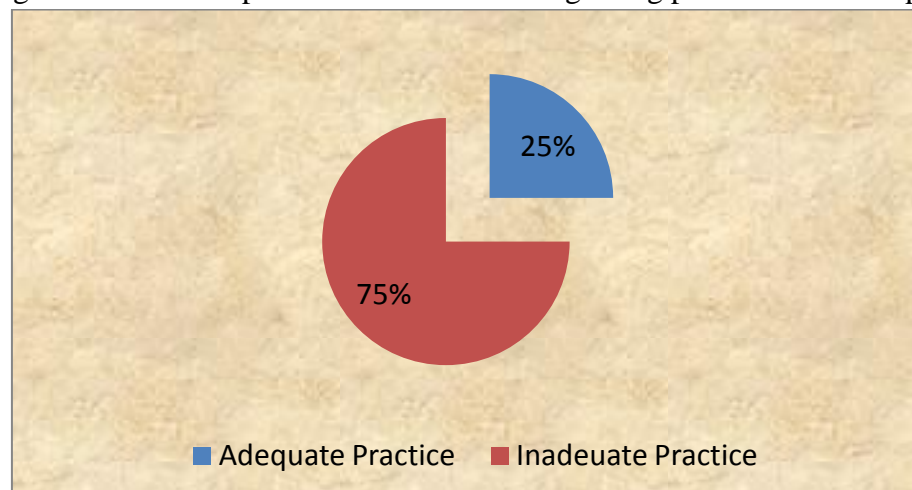


Figure 3: Percentage distribution of Caregiver of patients on the attitude regarding prevention of complications

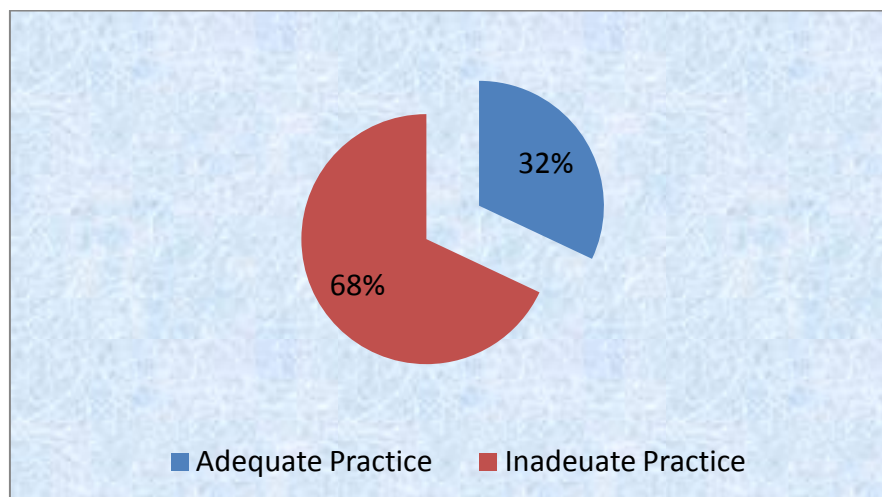


Table 10 : Average Score on True / False Test

Prevention of skin ulcer & management of Stage I & II pressure ulcer	%
Pretest group average Score	77.5%
Post test group average score	89.5%
Pretest and post test improvement	12%

Table 11: Average scores on test using charts and models

Ulcer type recognition & staging of pressure ulcer	
Pretest group average Score	36.66%
Posttest group average score	68.6%
Pretest and post test improvement	32%

Discussion

The participants reported having heard about VTE more frequently from friends, family or the media than from health care providers, including nurse. 2% of caregivers were only aware about pharmacological thrombophlebitis but very less i.e. 1.2% were aware about relevant information on VTE. The pretest findings suggested that patients & caregivers required more and further information on VTE during their hospitalization to enhance their involvement in VTE prevention. There was a need to provide a written, patient directed information that would address their lack of involvement / practice, knowledge, attitude regarding DVT. Out of 103 caregivers (98% were family members and 2% unrelated) filled up the questionnaire which enquired about the issues related to pressure ulcer prevention & treatment.

In the pretest only 3.5% individuals knew actually what pressure ulcer was, 2.3% of caregivers were aware about the cause of pressure ulcer and 95% were not able to identify the risk factors of pressure ulcer. Majority of the caregivers did not know the essential principles of prevention including devices used in pressure ulcer prevention, about the water bed / air bed mattress nor about the dressings used for treatment. 85% of the caregiver never received any information about different methods of pressure ulcer prevention and only 7% received such information from nurses which reflects low involvement of professional staff. Pagadpally et al (2003) in a study revealed that common mode of injury was fall from height followed by road traffic accident.² Following prolonged bed rest to restricted patients traction, shearing during movement promotes abrasion, skin injuries and breakdown leading to pain, infection & other complications. Contracture also causes capillary occlusion at bony prominences. As much as 50%-70% of all pressure ulcers are related to untreated contractures. Contractures are fixed deformities of the joints which are due to immobilization. As contractive tissue and muscle in the body is dynamic in nature and constantly being replaced and recognized through a series of phases of healing.³

Disused weakness is reversed at a rate of only 6% per week using submaximal exercise.⁴ According to Mac Dougall JD et al, there can be reduction in muscle strength, metabolic activity and circulation due to complete immobilization⁵. Sarmiento and Latta et al in his study has shown that after stabilization and early callus formation, joints associated with the fracture can be mobilized if properly bracing is done in order prevent displacement.⁶

While immobilizing the joints should be kept in neutral protection so that the opposing muscle are at equal tension and length.

The self instructional booklet comprised of various types of injury, DVT, complications, methods of prevention.

- **General definition**
- **Reason for patients to stay in bed could be as follows.**
- Multiple trauma
- # spine
- Paralysis
- Multiple causes.
- **Common Complications like**
- Muscles weakness / atrophy
- Muscle shortness
- Pressure sores / ulceration
- Lung infection
- VTE
- Osteoporosis

Conclusion

Patients are benefitted by patient information & training. Information on the patients situation, his / her needs and his/her future complications should be provided to the patient or to his / her family. Information brochures is used & it is by the booklet and our assistance, that the patients or his / her family member is taught how to do basic exercise by themselves. There are also different scales and standards in health care of chronically ill patients which resulted in improvement of pressure ulcer prevention and treatment in institutional care.

However, awareness & preparation of the family members and caregivers is essential who shall provide home care after discharge from the hospital. So there was a need for preparation and implementation of an educational programme for the bed ridden patients and their care givers.

Other educational aid like models and can be used besides the structured booklet, by the health care providers like nurses and nursing students. The health care personnel in this setting should each contribute their knowledge on education to the caregivers of patients.

Comprehensive pressure ulcer prevention programme are effective in reducing the ulcer incidences rates and this can be cost effective. Hence the booklet is a resource consisting of risk assessment, skin care, offloading and nutrition. Health care personnel are at the forefront of predicting patients at risk of pressure ulcer. Hence workshops may be done at the level of institution to provide hands on training to the nurses who in turn will increase the level of knowledge among caregivers.

As home based & hospital based care is the most common type of care for immobilized patients. Family education which includes role of caregiver and patients need to be reemphasized to achieve the desired goals.

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