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Effectiveness of Prophylactic Measures on Deep Vein Thrombosis among Post-operative Patients at Selected Hospital, Maharashtra

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ABSTRACT

The study was undertaken to evaluate the effectiveness of prophylactic measures on deep vein thrombosis among post-operative patients at Selected Hospital, Maharashtra. A quantitative research approach was adopted for this particular study. A True-experimental post-test only design was adopted by the investigator for this study. A consecutive sampling technique was used to draw 60 post-operative patients (30 samples in the experimental group & 30 in the control group) as samples for this particular study. The samples in the experimental group received Prophylactic measures like early mobilization whereas the samples in the control group received only routine hospital care. Later, during post-test, Modified well's criteria was used to identify the risk of patients for deep vein thrombosis on 5th day morning. The study findings revealed that there was a significant difference in the risk level of developing deep vein thrombosis between the samples of experimental group and control group t = 3.7, p= 0.01). The study results revealed that prophylactic measures are effective to prevent the risk of post-operative patients from developing deep vein thrombosis.

Key Words: Effectiveness, Deep Vein Thrombosis, Post-operative patients, prophylactic measures.

INTRODUCTION

Deep vein thrombosis (DVT) is a blood clot (thrombus) in a deep vein, generally affects in the legs. These clots call for medical care instantly. These clots may be fatal because they can break loose and travel through the bloodstream towards the lungs, and block blood flow to the lungs; and can be called as pulmonary embolism. Pulmonary embolism is often fatal. DVT shall lead to long-lasting complications also. It may damage the veins, cause the leg pain, swell, and change color.[1]

However, clots can also form in superficial veins of the body. Blood clots with inflammation in superficial veins are known as superficial thrombophlebitis or phlebitis which rarely cause serious health problems.[2] Blood clots gnerally form in the calf and thigh veins, and rarely in the veins of arm or veins of pelvic region. DVT is usually treated with anticoagulant medicines called blood thinners. Anticoagulants prevent blood clots by increasing blood clotting time. They also prevent existing blood clots from becoming larger in size.[3]

Deep vein thrombosis is a serious problem that affects millions of people every year globally. A comprehensive scientific review by the World Thrombosis Day steering committee revealed that every year 10 million new cases of DVT occurs across low, middle and high income countries. DVT is a leading cause of death and disability around the globe.[4]

One of the most feared complications in post-operative patients is deep vein thrombosis [DVT], which is linked to high

morbidity and mortality. The majority of postoperative DVT patients do not show any symptoms. 10 % cases of proximal DVT exhibit pulmonary embolism, which has the potential to be fatal. Therefore, preventing DVT is now more important than diagnosing and treating it.[5]

According to Journal of the American college of surgeons, risk of developing deep vein thrombosis is found high among patients with the conditions like stroke (59-100%), orthopaedic surgery (17-84%), major abdominal surgery (30-70%) and trauma (40-60%). Deep vein thrombosis after surgery is a well-known complication, according to an article in the CMC Journal on the condition in South India (Vellore). In patients without prophylaxis, the reported incidence ranges from 45% to 85%. 50% of patients who were 50 years of age or older had deep vein thrombosis.[6]

When compared to patients in the general population, hospitalized patients have a higher risk of developing VTE. Therefore, every hospitalized patient must take DVT prophylaxis into account. To determine the risk of VTE and bleeding, a thorough history and physical examination are required. Use prophylactic methods with or without pharmacologic therapy, can reduce the incidence of DVT, according to research. Based on numerous literature and personal experience in a hospital setting the researcher has chosen to carry out a study to determine the efficacy of prophylactic measures on DVT in relation to deep vein thrombosis.[7]

MATERIALS & METHODS

A quantitative approach was adopted to evaluate the effectiveness of prophylactic measures on deep vein thrombosis among post- operative patients. Further, the investigator used a True experimental post-test only research design for this particular study. The study setting was selected based on feasibility of conducting the study, availability of the sample, permission and proximity of the setting for investigation. The study was conducted in post-operative ward of the selected hospital of Maharashtra state. A consecutive sampling technique was used to draw 60 post-operative patients who fulfilled the inclusion criteria (30 samples in the experimental group & 30 in the control group) as samples for this particular study. Prior to data collection, ethical clearance was obtained from the institutional ethical committee and permission from hospital authority to conduct the study. The samples in the experimental group received prophylactic measures likes early mobilization whereas the samples in the control group received only routine hospital care. The samples in the experimental group received prophylactic measures likes early mobilization whereas the samples in the control group received only routine hospital care. Later, during post-test, Modified well's criteria was used to identify the risk of patients for deep vein thrombosis on 5th day morning. The investigator adopted the Wiedenbach's Helping Art of Clinical Nursing theory (1964) as a base for developing the conceptual framework.

RESULTS

Analysis and interpretation are based on the objectives of the study. The analysis was done with the help of inferential and descriptive statistics.

Section I. Distribution of socio-demographic variable and clinical variables among post-operative patients

Table 1: Frequency and percentage distribution of socio-demographic variables of post-operative patients N=60

Sr. No	Demographic variables	Group			
		Intervention (n=30)		Control(n=30)	
		N	%	n	%
1	**Age**				
	< 30 years	4	13.3%	3	10%
	31 -40 years	8	26.6%	10	33.3%
	41 -50 years	10	33.3%	8	26.6%
	51 -60 years	4	13.3%	3	10%
	> 60 years	4	13.3%	5	16.6%

2	**Gender**				
	Male	18	60**%**	17	56.6**%**
	Female	12	40**%**	13	43.3**%**
3	**Religion**				
	Hindu	10	33.3**%**	9	30**%**
	Muslim	7	23.3**%**	9	30**%**
	Buddha	10	33.3**%**	10	33.3**%**
	Others	3	10**%**	2	6.6**%**
4	**Educational Qualification**				
	Non-formaleducation	10	33.3**%**	11	36.6**%**
	Primary education	7	23.3**%**	8	26.6**%**
	SSC	4	13.3**%**	5	16.6**%**
	HSC	5	16.6**%**	3	10**%**
	Graduate	4	13.3**%**	3	10**%**
5	**Occupationstatus**				
	Un employed	11	36.6**%**	12	40**%**
	Self-employed	5	16.6**%**	6	20**%**
	Daily wages	11	36.6**%**	10	33.3**%**
	Govt. employee	3	10**%**	2	6.6**%**
6	**Family monthlyincome**				
	< Rs.5000	5	16.6**%**	6	20**%**
	Rs.5001-10000	15	50**%**	12	40**%**
	Rs.10001-15000	4	13.3**%**	6	20**%**
	>Rs.15000	6	20**%**	6	20**%**
7	**Marital status**				
	Un married	2	6.6**%**	4	13.3**%**
	Married	24	80**%**	22	73.3**%**
	Widow/widower	2	6.6**%**	2	6.6**%**
	Divorce	2	6.6**%**	2	6.6**%**
8	**Dietary pattern**				
	Vegetarian	19	63.3**%**	18	60**%**
	Non vegetarian	11	36.6**%**	12	40**%**

Section II. Effectiveness of prophylactic measures on deep vein thrombosis

Table 2: Frequency and Percentage distribution of probability of deep vein thrombosisamong post-operative patients in experimental and control group

	Group				**Chi square test**
	Experimental Group		**Control**		
Probability	**n**	**%**	**n**	**%**	
No	13	43.3%	5	16.6%	
Very low	10	33.3%	7	23.3%	
Low	4	13.3%	8	26.6%	$\chi 2$ **=10.41 P=0.03* df=4 S**
Moderate	3	10%	6	20%	
High	0	0%	4	13.3%	
Total	30	100%	30	100%	

The above table reveals that, the post-test probability level of deep vein thrombosis among post-operative patients in experimental and control group. In experimental group posttest reveals that 13(43.3%) had no probability level of DVT, 10(33.3%) had very low probability level of DVT, 4(13.3%) had low probability level of DVT, 3(10%) had moderate probability level of DVT and none of them had high probability level of DVT. However, in the control group, 4 (13.3%) high probability level of DVT, 6 (20.0%) had moderate probability level of DVT, 8(26.6%) had low probability level of DVT, 7(23.3%) had very low level of DVT probability and 5(16.6%) had no probability level of DVT.

Table 3: Comparison of mean post-test probability level of deep vein thrombosis amongpost-operative patients in experimental and control group.

Group	**No. of patients**	**DVT score Mean ± SD**	**Mean Difference**	**t- value**
Experiment	30	1.51±1.31	1.22	t=2.53 P=0.01** S
Control	30	2.73±1.41		

** highly significant at P≤0.01

Unpaired 't' test was computed to find out the significant difference between the pos-test scores of experimental group and control group. Highly significant difference ($p<0.0001$) was found between the post-test of experimental group and control group with a calculated 't' value of 2.53 (table - 3). Hence, it was interpreted that highly significant difference between the post-test scores was due to an effect of prophylactic measures.

DISCUSSION

The present study was focused to evaluate the effectiveness of prophylactic measures on deep vein thrombosis among post-operative patients at Selected Hospital, Maharashtra. Post-operative patients are at higher risk of developing deep vein thrombosis than other patients due to the immobility, duration of surgical procedure, effect of anesthesia, prolonged hospital stay, severity of illness and environment of post-operative unit itself.

Unpaired 't' test was computed to find out the significant difference between the pos-test scores of experimental group and control group. Highly significant difference ($p<0.0001$) was found between the post-test of experimental group and control group with a calculated 't' value of 2.53 (table - 3). Hence, it was interpreted that highly significant difference between the post-test scores was due to an effect of prophylactic measures.

Findings of present study support the study conducted by Jonathan Laryea where there was highly significant difference ($p<0.0001$) between the post-test score of control group and experimental group. Similarly, the study conducted by John Attia also support the present study where there was highly significant difference ($p<0.005$) between the post-test score of comparison group and experimental group.

CONCLUSION

The study was conducted among post-operative patients to assess the effectiveness of prophylactic measures on Deep Vein Thrombosis at selected hospital of Maharashtra state. The study results revealed that prophylactic measures are effective to reduce the risk of post-operative patients from developing deep vein thrombosis. Deep Vein Thrombosis can be life threatening if not properly managed and cared.

Declaration by Authors

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