



ASSESSMENT OF ANKLE PUMP EXERCISES IN POST ORTHOPAEDIC HIP SURGERIES

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ABSTRACT

Deep Vein Thrombosis (DVT) a dreaded complication noted in post-operative patients, which may even prove to be fatal. There are multiple modalities that may be used for the Prophylaxis of DVT. Combination of different modalities has shown better results. Active ankle pump exercise is the easiest modality. This is a prospective study, in which patient compliance to active ankle pump exercises were observed. Selected patients were post orthopedic hip surgery patients, and they were observed on first post-operative day. The study showed that there was good compliance with postoperative ankle pump exercises.

Introduction

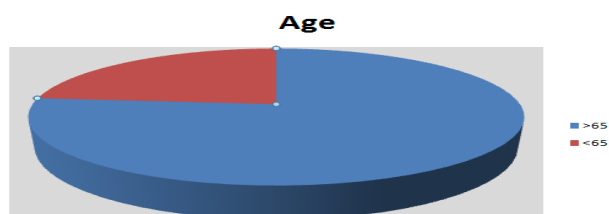
Deep Vein Thrombosis is one of the dreaded complications in a decubitus patient. This is encountered quite often in post operated patients, especially in old age. It may lead to Pulmonary Thrombo- Embolism, which is almost fatal. Multiple studies have proven that at least 2 regimens when taken up could effectively curb the incidence of DVT. They mention the use of Low molecular heparin, pneumatic compressive devices, CPM machines, and ankle pumps. Of the available options ankle pumps is the natural and easiest modality. Hence we focused in this study the compliance of patients to ankle pumps in the first post-operative day.

Suspected clinical features for thrombo embolism (Joseph A. Caprini)

1. Leg pain
2. Leg tenderness
3. Leg swelling
4. Chest pain
5. Shortness of breath
6. Transient or orthostatic hypotension
7. Transient hypoxemia
8. Unexplained decrease in level of consciousness
9. Suspected postoperative myocardial infarction
10. Postoperative non hemorrhagic stroke
11. Postoperative pneumonia
12. Unexplained sudden death
13. Unexplained cardiovascular collapse
14. Postoperative death without autopsy
15. 90-day follow-up for death, readmission, outpatient treatment of VTE
16. 5-year follow-up looking for signs of the post thrombotic syndrome

Materials and Methods

This was a prospective study. All the patients chosen were admitted, post-operative cases of Hip surgery during the time period of March 2015 – April 2015. There were 17 patients in total. Of which 15 were females and 2 were males. From which 13 where 65 years or more and 4 were less than 65 years.



The exclusion criterion included

1. Mentally ill patients
2. Post cerebrovascular accident patients
3. Patients with paralytic disorders
4. Patients with injury to ankle
5. Patients with foot drop

Sl No	Name	Gender	Age
1	A	F	75
2	B	F	14
3	C	F	56
4	D	F	83
5	E	F	80
6	F	F	73
7	G	F	97
8	H	F	72
9	I	F	27
10	J	F	79
11	K	F	85
12	L	F	71
13	M	M	35
14	N	F	65

15	O	M	70
16	P	F	65
17	Q	F	75

Table 1: Study population

Patients were assessed on post-operative day 1. This period was so chosen to eliminate the possible effects of Spinal anesthesia (Which was the means of anesthesia used in all the patients who were included in this study) Patients were trained on how to perform ankle pumps, and were explained to about the advantage it has in preventing Deep Vein Thrombosis they were later evaluated for compliance to the same.

Results:

All the patients were found to be compliant to ankle pumps. The patients during the period of their stay did not develop any of the features of DVT.

Sl No	NAME	GENDER	AGE	PATIENT MOBILISING ANKLE ON POST OP DAY 1	
				YES	NO
1	A	F	75	Y	
2	B	F	14	Y	

3	C	F	56	Y	
4	D	F	83	Y	
5	E	F	80	Y	
6	F	F	73	Y	
7	G	F	97	Y	
8	H	F	72	Y	
9	I	F	27	Y	
10	J	F	79	Y	
11	K	F	85	Y	
12	L	F	71	Y	
13	M	M	35	Y	
14	N	F	65	Y	
15	O	M	70	Y	
16	P	F	65	Y	
17	Q	F	75	Y	

RESULT			100%
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Result

Among the study population, it was observed that all the patients were compliant with the ankle pump exercise as assessed on the first post op day

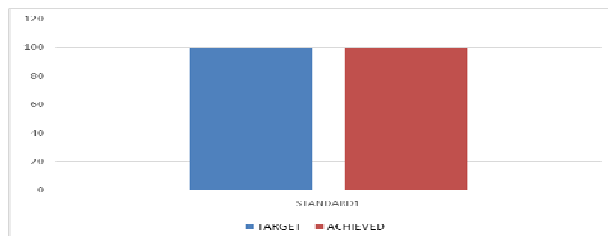


Figure: STANDARD1=efficacy of ankle pumps on Post-Operative Day 1

DISCUSSION

The study was aimed at finding out the patient compliance to ankle pumps in the immediate post-operative period. Patients were explained to about how to perform and the advantages in performing, and they were monitored for the same. Hip surgeries were chosen, since they were less likely to be non-compliant due to injury or surgery site being in proximity to ankle.

Deep vein thrombosis (DVT) of the leg usually originates in venous valve pockets, within which flow separation results in recirculation and interaction of systemically activated platelets, leucocytes and coagulant enzymes.

Because the risks of DVT and PE including fatal PE are high in patients who undergo hip surgery, prophylaxis should start as soon as possible after surgery.

The absence of prophylaxis in patients undergoing hip surgery has a DVT risk of approximately 50%.

Rheological therapies including compression devices-ankle pump exercises, hemodilution with dextran, and defibrinogenation have each been shown to reduce the risk of DVT.

In my study 17 patients were selected who underwent hip surgery .They were given a trial of ankle pump exercises as a prophylactic measure for DVT postoperatively.

Literature states that regular ankle exercises reduce the risk of arterial and venous thrombotic events. One mechanism may be that regular exercise reduces circulating levels of viscosity and hemostatic and inflammatory variables. Encouraging regular exercise, and minimizing immobility, may therefore reduce the risk of cardiovascular thrombotic events through systemic effects which maintain blood flow.

Conclusion

It was noted that compliance to ankle pumps were easy. Post-operative ankle pump is quite effective in reducing the incidence of DVT. Mobilizing the patients with good surgical fixation on the earliest possible time period also helps in stimulating better circulation. But this may be difficult in older population, for them ankle pumps may be the easiest alternative.

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