



## Novel technique on level of pain and bruise among patient receiving LMWH

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### Abstract

Effectiveness of novel technique on level of pain and bruise among patients receiving low molecular weight heparin at selected tertiary care hospitals, Coimbatore.

**Background of the study:** Low molecular weight heparin is used for the prevention of blood clots and treatment of thromboembolism also myocardial infection. Subcutaneous administration of low molecular weight heparin may result pain and bruises.

**Objective:** The main objective of the study was to assess the effectiveness of novel technique on level of pain and bruise among patients receiving low molecular weight heparin in interventional and routine care group.

**Research Methodology:** A true experimental post test only control group design was used. As per the inclusion criteria 60 samples were selected by using purposive sampling and were divided into interventional and routine care group (each 30). Numerical rating scale was used to assess the severity of pain, bruise assessment scale was used to measure the bruise. For the interventional group novel technique of injecting low molecular weight heparin was received and routine care group participants received routine technique of low molecular weight heparin. The post test was assessed after the intervention, pain assessed immediately after the injection bruise measured after the 48 hours of injection.

**Results:** The study findings revealed that, novel technique of injecting low molecular weight heparin was effective for the management of pain and bruise among patients receiving low molecular weight heparin. There was significant difference found in the novel technique of injecting subcutaneous low molecular weight heparin compared with routine technique ( $p < 0.05$ ).

**Conclusion:** The study concluded that novel technique of injecting low molecular weight heparin was effective.

**Keywords:** effectiveness, novel technique, low molecular weight heparin, pain and bruise

### Introduction

Health is the level of functional or metabolic efficiency of a living organism. Cardiovascular disease is the single largest cause of death worldwide and is commonly associated with myocardial infraction. (Susan L. Woods 2010). Anticoagulants are a type of drug that reduces the body's ability to form clots in the blood. Low molecular weight heparin is a type of heparin injected subcutaneously and is used to prevent the further development of an existing thrombus or new clot formation. Hadley, change and rogers have reported that up to 90% individuals develop pain, bruise, hematoma from subcutaneous administration of heparin. (Victoria A. 2004). Slow administration of subcutaneous heparin injection is recommended. It is stated that when an injection is administered slowly, tissue damage can be reduce due to the reduction in giving strength of drug to the tissue, it has been suggested that heparin injection must be administered slowly to tissue and if it has been given rapidly into the subcutaneous tissue it may cause pain and bruise, caused by increased tissue pressure (Chan 2001) [20].

### Statement of the problem

An experimental study to assess the effectiveness of Novel technique on level of pain and bruise among patients receiving Low molecular weight heparin at selected tertiary Hospitals, Coimbatore.

### Objectives

- To assess mean post test level of pain and bruise among patients receiving Low molecular weight heparin among interventional and routine care group
- To assess the effectiveness of Novel technique of injection on level of pain and bruise among patient receiving low molecular weight heparin among interventional and routine care group.
- To correlate the level of pain with bruise among patients receiving Low molecular weight heparin among interventional and routine care group
- To determine the association of post test level of pain and bruise among interventional and routine care group with their selected demographic variables.

**Materials and Methodology**

Quantitative research approach was adopted for the study in which true experimental Post test only control group design was used to evaluate the effectiveness of novel technique on level of pain and bruise among patients receiving low molecular weight heparin in a selected tertiary care hospitals. The researcher randomly allocated the study participants in interventional and routine care group.

**Section A: Demographic variables**

It consists of 7 items which comprised of Sample no, Age in

years, Gender, Medical diagnosis, Body mass index, Site of injection, Type of LMWH.

**Section B:** Numerical Rating Scale to assess the severity of the pain, Bruise assessment scale to measure the size of the bruise.

**Results and Discussion**

Descriptive and inferential statistics were used to analyze the data.

**Table 1:** Frequency and percentage distribution of post test level of pain and bruise among patients receiving low molecular weight heparin in interventional and routine care group.

S. No	Groups	Level of pain and bruise																	
		Level of pain								Bruise									
		No pain		Mild		Moderate		Severe		No bruise		Small		Large		Large Grade I		Large Grade II	
f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%		
1.	Interventional group (n=30)	21	70	9	30	-	-	-	-	8	26.7	16	53.3	5	17	1	3	-	-
2.	Routine care group (n=30)	-	-	3	10	23	77	4	16	-	-	-	-	6	20	13	43	11	37

**Table 2:** Comparison of Post test level of pain and bruise among patients receiving low molecular weight heparin in interventional and routine care group using Independent ‘t’ test. N=60

Groups	Parameters (post test)	Mean ± SD	Independent ‘t’ test	Table value
Interventional group (n=30)	Pain	0.3 ± 0.47	21.98*	Table value (2.00)
Routine care group (n=30)	Pain	5.2 ± 1.18		
Interventional group (n=30)	Bruise	1.03 ± 0.76	10.65*	
Routine care group (n=30)	Bruise	3.16 ± 0.74		

Note: \* Significance at  $p < 0.05$

**Table 3:** Correlation between the level of pain with bruise among patients receiving low molecular weight heparin in interventional and routine care group, N=60

Groups	Level of pain with bruise	Mean ± Standard deviation	‘r’ value
Interventional group (n=30)	Pain	0.33 ± 0.55	-0.0275*
	Bruise	1.033 ± 0.76	
Routine care group (n=30)	Pain	5.2 ± 1.18	0.1947
	Bruise	3.167 ± 0.75	

**Discussion**

- The mean and the standard deviation of post test level of pain and bruise was 0.3 and 0.47 for pain and the bruise mean and standard deviation was 1.03 and 0.76 respectively. While in the routine care group the mean and standard deviation was 5.2 and 1.18 for pain and bruise the mean and standard deviation was 3.16 and 0.74.
- The calculated value of independent ‘t’ test was 21.98 for pain and 10.65 for bruise whereas the given table value is 2.00 shows the effectiveness of novel technique at the level of  $p < 0.05$ . Hence the novel injection technique was effective on level of pain and bruise therefore hypothesis H1 was retained.
- The mean score and standard deviation on level of pain 0.33 ± 0.55 and bruise was 1.033 ± 0.76 and there was a negative correlation (‘r’ -0.0275) between level of pain with bruise in interventional group. On the other hand, the mean score and standard deviation on level of pain was 5.2 ± 1.18 and bruise was 3.167 ± 0.75 and there was a positive correlation (‘r’ 0.1947) between level of pain with bruise in routine care group. Therefore, there was a significant correlation between the level of pain with bruise among routine care group, hence H2 was

retained.

- The calculated chi square value was higher than the table value for demographic variables like medical diagnosis for pain and body mass index for bruise with the post-test level of patient outcome in the interventional group. In routine care group for demographic variable like age was higher than the table value at the level of  $p < 0.05$ . It reveals that there was significant association between the demographic variables and the post test level of pain and bruise, hence H3 was retained

**Conclusion**

The result of the study showed that there was significant difference in the level of pain and bruise between interventional and routine care group. Therefore, the research hypothesis is retained. Thus, the novel technique of injecting low molecular weight heparin is more effective than the routine technique. Therefore, this intervention could be promoted as an institution policy and can be implemented for the management of pain and bruise among patients receiving low molecular weight heparin.

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