

A STUDY TO ASSESS THE EFFECTIVENESS OF MOIST ICE PACK APPLICATION ON THE SITE OF SUBCUTANEOUS HEPARIN INJECTION IN PREVENTION AND REDUCTION OF PAIN AND BRUISE AMONG SELECTED CLIENTS.

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Abstract: This study was undertaken to assess the effectiveness of moist ice pack application in prevention and reduction of pain and bruise at the site of subcutaneous heparin injection. purposive sampling technique was used to select the samples. Quasi experimental design was adopted for the study. Paired 't'-test was used to determine the significant difference between the scores of dependent variables before and after application of moist ice pack.

Key words- *subcutaneous heparin , pain ,bruise , moist ice pack.*

1. INTRODUCTION

Individuals get hospitalized for a wide range of acute illnesses and injuries . Nurses are advocate for patient's safety. They must do what is in the patient's best interest while causing the least harm or distress. However, at times and with the best intentions of the nursing staff, varying degrees of discomfort and bruising are unavoidable side effects of patient's medical treatment .¹

Subcutaneous heparin is prescribed for impaired mobility or prolonged bed rest . It is an extremely important part of the treatment regime. Use of heparin as a part of the patient anticoagulant therapy is one intervention that can be implemented to prevent the formation of thrombi.

The subcutaneous administration of the anticoagulant heparin sodium is frequently performed nursing task. Pain, and bruise are most common complications detected at subcutaneous injection site of heparin among the patients. Pain at the injection site and bruising are likely consequences of local tissue trauma that occur during administration of subcutaneous heparin injection. These injection site problems cause disturbance of future injections and a decrease in potential injection sites². A study conducted reported that up to 90% individuals develop pain, and bruises from subcutaneous heparin injection.³

These adverse outcomes of subcutaneous heparin injections are problematic for both the patient and the nurse . Specifically , site –pain causes the patient physical and psychological discomfort and bruising limits possible sites for subsequent injections . Thus , it is important that nurses use an injection technique that minimises the incidence of site pain and bruising when administering subcutaneous heparin injections.³

This creates a challenge for the nurses attempting to minimize pain and bruise formation and reduce patient discomfort during treatment regime³

Thus it is important that nurses use an intervention to minimize the site pain, bruising and hematoma caused by heparin injection.

A study reported that cooling and analgesic effect of applying ice to the skin is very beneficial, causing a numbing sensation and relieves pain⁴. In order to deal with the complications review of literature suggest that ice application at the injection site is effective in preventing and reducing pain, and bruise.⁵

2.METHODOLOGY.

The purpose of the current study was to evaluate the effect of moist ice pack application in reduction and prevention of pain, and bruise, at the site of subcutaneous heparin injection among selected clients

This chapter provides with the methods of data collection , study procedure , measurement of dependent variable and , data analyses

2.1 Research approach:

The entire study is based on research approach . The researcher found that experimental approach was best suited , for the current study .

2.2 Research design:

It refers to researcher's overall plan for obtaining answers to the research questions and for testing research hypothesis. The research design provides an overall plan or blue print to carry out the study.

A quasi experimental design (one group pretest - posttest) is selected for the study and convenient sampling technique is used to select the samples . The intervention or the treatment was given to the group after pretest ; it involves the manipulation of the independent variable (moist ice pack) keeping the other variables effecting the study under control to assess the effect of independent variable on the dependent variable(development of pain and bruise)

2.2.1 Variables under study :

Independent variable:

- Application of moist ice pack at the site of subcutaneous heparin injection.

Dependent variable:

- Development of pain and bruise, at the site of subcutaneous heparin injection

Demographic variables:

- Age , sex , educational status, occupation, marital status.

2.2.2 Study setting:

The study was conducted in intensive care unit , medical and surgical wards of Bharathi nursing home at Tumkur. This nursing home is having the necessary basic facilities to for the purpose of study.

2.2.3 Population:

The population for this study is all the clients receiving subcutaneous heparin injection.

2.2.4 Sample:

The clients receiving subcutaneous heparin injection who fulfilled the inclusion criteria.

2.2.5 Sample size:

The sample size for the study was 60 clients receiving subcutaneous heparin injection.

Inclusion criteria:

- clients receiving subcutaneous heparin injection
- clients who are above 18 years ,who are able to provide consent

exclusion criteria

- clients who had difficulty understanding the nature of study
- clients who expressed distress or anxiety when being asked to take part in the study

2.2.6 sampling technique:

sampling is the process of selecting representative units of a population for the study . The research sampling method for the current study was purposive sampling method . study samples were selected from the population according to the purpose of the study .

2.3. Selection And Development Of Tool And Intervention:**2.3.1 Selection of the intervention :**

Administration of subcutaneous heparin injection is a frequently performed procedure , the pain and bruise associated with heparin injection are frequently encountered by nurses during practice. In order to tackle this problem nurses need an intervention that is effective at the same time feasible.

The intervention used here is moist ice pack application. This intervention was selected based on the personal experience of the researcher as well as the review of literature from various sources.

Review of literature reveals that application of cold on the skin for 5minutes causes numbness and produces analgesic effect, moreover it also penetrates the deep layer of the tissue and has an therapeutic effect on minor tissue injury⁴.

Injection administration technique used in this study :

1. a subcutaneous site for administration of injection was selected based on the preference of the client
2. the moist ice pack was applied at the site of injection for 5 minutes
3. after 5 minutes the site was cleansed with spirit swab
4. the injection was administered
5. the injection site was marked with a marker

2.3.2 Selection Of Tool:

The tool was selected and developed by the researcher based on personal experience and related review of literature. The tool used for the current study is divided into two parts

Part I –demographic profile to collect information such as age , sex , education status ,etc.,

Part II- a. pain rating scale to measure the intensity of pain and

b. observation checklist to collect data regarding bruise.

2.3.3 Development of tool:

The tool was developed by the researcher based on the review of literature as well as the personal and professional experience of the researcher . The tool was refined and validated by the subject experts.

Description of the tool :

The tool consists of two parts :

1. part I : demographic profile, it includes collection of data regarding variables such as age, sex, marital status , education status and diagnosis of the clients.
 2. part II: a. pain rating scale to measure the intensity of pain
 - b. observation checklist to collect data regarding bruise
- a. pain rating scale : to measure the intensity of pain , the visual analogue pain rating scale was used it consists of measurements ranging from 0 to 10 in which
- zero score indicates no pain
 - 1-3 score indicates mild pain
 - 4-6 score indicates moderate pain
 - 7-10 score indicates severe pain

The scale was used to measure the intensity of pain at the site of injection experienced by the subjects within 12 hours after the administration of injection

b. part II : observation checklist to collect the data regarding bruise . It is used within 48 to 60 hours of administration of injection , as the review of literature reveals that pain and bruise develop at peak within 48 hours of administration and start to resolve within 72 hours . If there is presence of bruise at the site of injection within 48 hours after the administration of injection then it is recorded in the checklist as bruise present in the column for data regarding bruise. If there is no bruise present then it is recorded as no bruise in the respective column

2.3.4 Content Validity Of The Tool

content validity is the evaluation of the content by experts . Content validity of the tool was established by requesting the experts to go through the developed tool and give their valuable suggestions the suggestions of experts were incorporated into tool and finalized with expert opinion.

2.3.5 Reliability Of The Tool:

reliability of the tool is the degree of consistence with which the instrument measures the attribute it is supposed to measure.

For this study the reliability of the instrument was analysed by using the test- retest method . the reliability of the tool is $r = 0.82$, which indicates a high degree of reliability and no modification was made .

2.3.6 Determination Of The Physical Facilities :

The physical set up to conduct the study was planned after consultation with the medical and nursing superintendent and then decided to be conducted in the respective wards where the client is admitted.

Informing the participants :

The study was explained in detail to the participants , and informed consent was obtained , to those participants who were illiterate it was explained in their own languages(hindi ,kannada)

2.4 PILOT STUDY:-

The purpose of the pilot study was to assess the feasibility and to plan the statistical analysis of the data . Pilot study was conducted in selected hospital in Tumkur; about 6 clients receiving subcutaneous heparin injection were allocated. They were informed about the purpose of the study and necessary instructions were given to respond the questions. . The results of pilot study revealed that the study is feasible.

3. Study procedure

Prior to the commencement of the study the researcher held regular meetings with the nurses in designated clinical setting to inform about the study and to seek co-operation. The participants in the study were initially given a verbal explanation of the study purpose and procedure. Then upon agreeing to participate, they were asked to read and sign the informed consent form. The researcher then administered the injection according to the protocol described earlier.

3.1 Measurement of the dependent variable

Site pain at the time of administration of injection : Immediately following each administration of the injection the client was asked to sit upright in bed and was given a VAS slip (visual analogue scale) to rate the intensity of site pain experienced at the time of administration of the injection. The subject was asked to report any sensation of burning, stinging, aching, soreness or hurting by placing a mark on the rating scale.

A number system was used to code the VAS slips

Bruise :

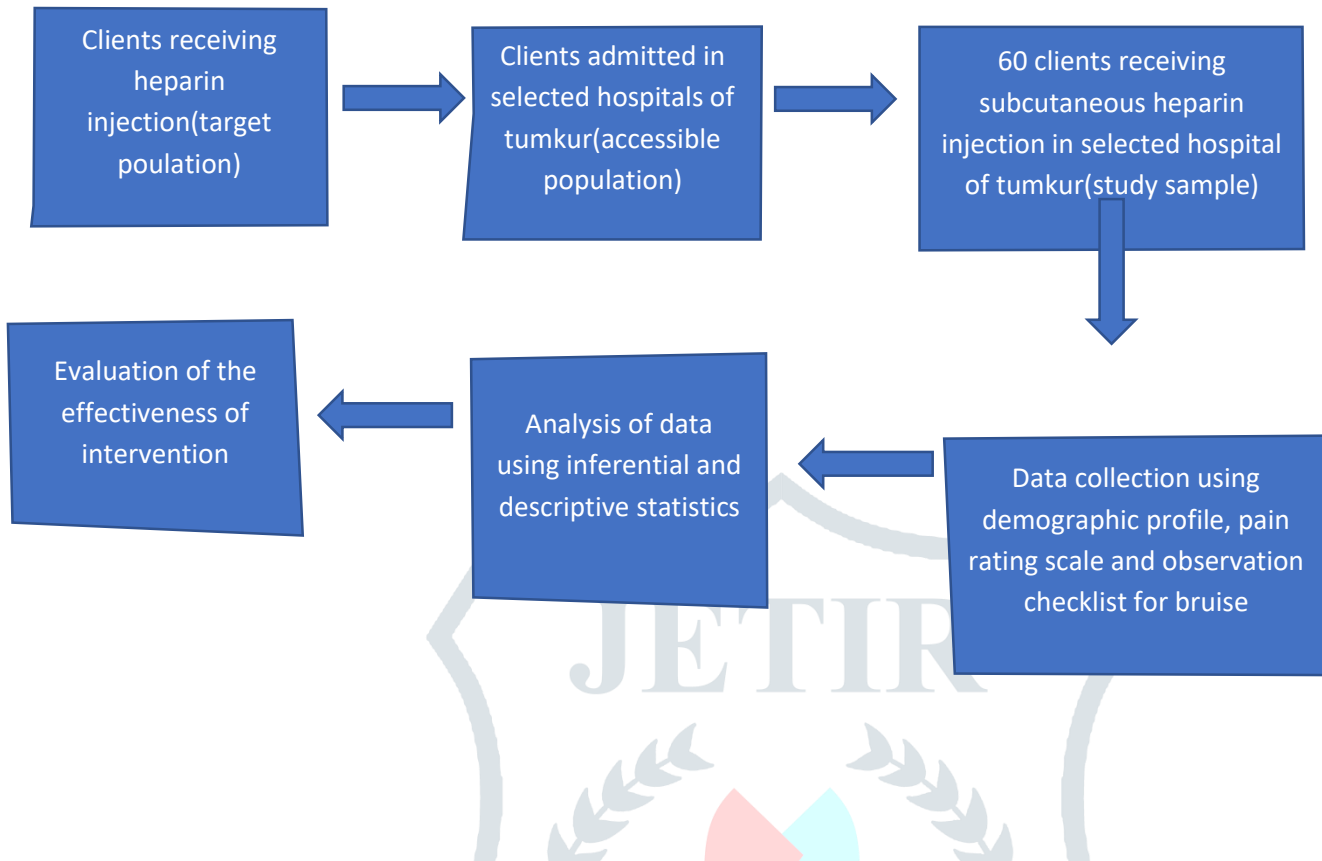
Based on the review of literature of previous research on subcutaneous heparin injection, the development of bruise is shown to peak at 48 hours after the administration and to resolve at 72 hours. Therefore, the time frame for assessing the injection site for bruise is 48 hours. The presence or absence of development of bruise was noted.

Analysis of the data:

Analysis of the data included the VAS pain scores, and bruise, demographic data like age, sex, education status, marital status and diagnosis.

Descriptive and inferential statistics were used to analyze the data. chi square test was used to analyse the effect of independent variable on dependent variable.

4. Schematic representation of study design



5.Results and discussion

This chapter deals with analyses of data collected from a sample of 60 clients receiving subcutaneous heparin injection in selected hospital of Tumkur.

The collected data was tabulated and analysed using descriptive and inferential statistics

Analysis is categorizing, ordering and summarizing of data to answer the research hypothesis and questions

Data analyses is defined as a method of reducing, organizing and giving meaning to the data using descriptive and inferential statistics (burns and groove 1991)

The data for the current study was collected through structured questionnaire, visual analogue pain rating scale, and observation checklist. The data were analysed on the basis of the objectives of study.

Table 1: demographic variables

Demographic variables.		No. of subjects.	Percentage. %
Age.	21-30	08	13.4
	31-40	10	16.6
	41-50	14	23.3
	51-60	20	33.3
	61>	8	13.4

Gender.	Male.	40	66.7
	Female.	20	33.3
Education status	Illiterate.	12	20
	Primary.	28	46.7
	Secondary.	20	33.3
Marital status	Married	56	93.3
	Unmarried.	4	6.7
Diagnosis.	Heart block	8	13.3
	Myocardial infarction	20	33.3
	Rheumatic heart disease	16	26.7
	Deep vein thrombosis	16	26.7

Table :2 Frequency and percentage of intensity of pain among clients before and after the application of ice.

Pain.	Before.	Percentage %	After.	Percentage %	Chi square
Severe	6	10	4	6.6	42.4 df=3 (p<0.05) significant
Moderate	50	83.3	12	20	
Mild	4	6.7	16	26.7	
None	0	0	28	46.6	

Table:3 Frequency and percentage of bruise among clients before and after application of moist ice pack.at 48 hrs

Bruise	Before.	Percentage %	After.	Percentage %	Chi square
Bruise developed	40	66.7	16	26.7	11.97 df=2 (p<0.05) significant
No bruise	20	33.3	44	73.3	

Table:4 significant difference in the development of dependent variables, among clients before and after application of moist ice pack.

Dependent variables	Before application		After application		Paired t-test at 5%level of significance
	Mean score	Standard deviation	Mean score	Standard deviation	
Pain	4.6	7.53	2.95	7.36	t=3.43significant
Bruise at 48hrs	2	12.58	0.71	4.17	t=2.52significant

The aim of the study was to assess the effectiveness of moist ice pack application in the prevention and reduction of pain, and bruise at the site of subcutaneous heparin injection among selected clients at selected hospitals of Tumkur.

The objectives of the study were

1. To assess the pain, bruise, hematoma level before the ice application
2. To assess the effectiveness of, application of ice on the reduction of pain, and bruise.

In order to achieve the objectives of the study; quasi- experimental one group pre-test post test design was adopted for the study. 60 subjects those fulfilling inclusion and exclusion criteria were selected by convenient sampling technique. The subjects were assessed using socio demographic profile to collect personal data and visual analogue pain rating scale to assess pain and observation checklist to assess bruise.

6. CONCLUSION

It reveals that there was a significant difference in the development of pain, and bruise before and after the use of intervention.

The data were analyzed on the bases of objectives of the study

1. To assess the pain, bruise, hematoma level before the ice application
2. To assess the effectiveness of, application of moist ice on the reduction of pain, and bruise.

The mean pre-intervention score for pain, bruise was higher than the mean post intervention score. It shows that the clients developed less pain and bruise after the application of moist ice pack as compared with the pre-intervention levels indicating the effectiveness of the intervention.

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