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## EFFECT OF HELFER SKIN TAP TECHNIQUE ON PAIN REDUCTION AMONG PATIENTS RECEIVING IM INJECTION AT SELECTED HOSPITAL AT IDUKKI DISTRICT

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### ABSTRACT

Pain is an unpleasant feeling and emotional experience that is related to real or potential tissue damage. From many points of view, the pain is a common symptom intended for seeking aid. Intramuscular injection is a common practice in modern medicine it is used to deliver several drugs and almost all vaccines. Pain originating during intramuscular (IM) injection should not be underrated, because a painful injection might incite severe fear of injection, which may delay the patient seeking medical help. A study was conducted to assess the effectiveness of Helfer skin tap technique on perception of pain among patient receiving IM injection. A quasi experimental design of pretest posttest control group design was used for the study. In this study, sample consisted of patients who received test dose and full dose of Diclofenac IM injection, the sample consists of 60 subjects. Patients were selected by consecutive sampling technique. First experimental and control group received test dose of Diclofenac (.5ml) IM injection with routine technique. During administration of injection the trained rater assess the level of pain by using Dolor behavioral scale and after injections the subjects was given necessary instructions by the investigator to rate the numerical pain rating scale. During the posttest the full dose of Diclofenac injection was administered by the investigator with Helfer skin tap technique. And at the same time routine technique was adopted to control group. The trained rater observed the patient and pain score was taken and recorded. The collected data were analyzed by using descriptive and inferential statistics. Independent t test was adopted to compare the posttest pain score in both groups. The posttest mean pain score of experimental group was 3.27 and SD of 1.48. During the posttest the control group exhibited mean pain score of 5.233 and SD of 2.42. Since the p value is < 0.000, it indicates that there is a significant difference in posttest level of pain among experimental group and control group. The findings of the present study revealed that the Helfer skin tap technique had an effect on reducing pain during IM injection.



#### **INTRODUCTION**

"Pain is whatever the persons say it is, and exists whenever he says it does" (McCaffery &Passero) [1].

Pain is considered as a basic essential human experience. According to 'American Pain Society' pain is considered as the 5th vital sign. It emphasize its significance and to increase the awareness among health care professionals of the importance of effective pain management [2]. Pain is common in hospitalized patients. It is unknown if any population of hospitalized patients are at low risk for pain.

Major causes for pain include disease conditions, traumatic injury, hospital procedures etc. Procedural pain is an important source of discomfort for clients in nursing care setting [3]. Patients undergo a large number of painful procedures during the hospital stay. The administration of medication through injections is common invasive procedure in our health care settings. Injection is a method of introducing liquid medications into various body tissues. There are several methods of injections used in human including intradermal, subcutaneous, intramuscular, intravenous etc. Injection pain is related to the penetration of the skin by the needle and to the mechanical and chemical effect of the drug during the injection [4]. Pain is the one discomfort of IM injection. A study titled "Patients' perceptions of pain with spinal, intramuscular, and venous injections". Conducted among 46 samples during the pre- test 83% of sample thought spinal puncture to be most painful, whereas 4% said intramuscular or intravenous injection would hurt most. After the procedures 89% said the most painful had been either intramuscular injection (50%) or intravenous injection (39%). And 11% said spinal injection hurt most [5].

An IM injection is a technique used to deliver a medication deep into the muscles. In most of the invasive procedures pain is well guarded by the effective use of anesthetic or analgesic treatment, whereas pain induced during IM injection cannot be managed by the use of anesthetics. Memories related to painful medical procedures may influence the patients for taking decisions about future treatment. Reducing patient's pain related to therapeutic procedures is important for all nurses for many reasons. Unnecessary pain can damage the nurse patient relationship. Knowledge of alternative techniques or non-pharmacological measures during a painful invasive procedure can improve patient care and satisfaction.

Non-pharmacological strategies are inexpensive, easy to provide and safe. It contributes to analgesia and it is most effective option for treating the pain and to provide holistic patient care. Non-pharmacological measures are efficient safe means in reducing discomfort and adverse effects during medical procedures. There are different types of non- pharmacological methods are available such as heat & cold application, massage therapy, physical therapy, guided imagery, laughter, music therapy, self-hypnosis, acupuncture etc. These therapies are effective in improving patient experience during stressful or painful medical procedures [6].

An experimental study was conducted to examine the effectiveness of blunt pressure technique on pain response among patients receiving IM injection. Using Quantitative approach randomized controlled trial with posttest only design was undertaken for 6 a period of 6 weeks in a tertiary care centre. Patients receiving IM injection were selected using consecutive sampling technique. The mean pain response in the standard technique was  $3.15 \pm 1.44$  and in the blunt pressure technique was  $1.01 \pm 0.98$ . The difference in pain response was found to be statistically significant (P < 0.001) [7]. This study showed that blunt pressure technique is found to be effective in reducing the pain response during IM injection.

Helfer skin taping technique is used as a nonpharmacological method. Skin tapping is one of the mechanical stimulations over the skin that can alter the balance between the small diameter fiber and large diameter fiber which is based on the Gate Control theory [8]. According to this theory stimulation of large diameter fibers inhibits the transmission of pain. Helfer skin tap technique is more effective non- pharmacological measures than others. Because it is more economical, does not require any effort from the patient, does not have any threat of side effects. This technique is most convenient for nurses and it only requires knowledge and concern towards the patients. Considering these factors, the investigator decided to assess the effectiveness of Helfer skin tap technique in the regional settings.

#### **OBJECTIVES OF THE STUDY**

1. To assess the pain level of patients during IM injection in experimental and control group

2. To assess and evaluate the effect of Helfer skin tap technique on pain reduction among patients receiving IM injection

3. To find out the association between the levels of pain experienced and selected demographic variables.

#### HYPOTHESIS

H1: There is significant association between level of pain experienced and selected demographic variables.

H2: The pain score is significantly low among the subjects in experimental group than control group.



#### MATERIALS AND METHODS

The quasi-experimental design of pretest posttest control group design was used to evaluate the effect of Helfer skin tap technique for reducing during IM injection. The design is depicted as follows:-

Group I (experimental group)	01	Х	O2
Group 2 (control group)	01		O2

O1- Pretest score of pain in experimental group and control group

X- Helfer skin tap technique for patients receiving IM injection

O2- Post test score of pain in experimental group and control group

The sample consists of 60 subjects. Patients were selected by consecutive sampling technique.

Ethical clearance was obtained from the ethical committee and concerned authorities prior to the data collection. Informed consent was taken from the patient. All the subjects of both experimental and control group were prescribed to be administered injection Diclofenac (1ml) by the casualty doctor. The test dose of Diclofinac (.5ml) is mandatory for the first time Diclofinac injection prescribed patients. Half of the dose is given as the test dose, if no adverse reaction the remaining half is given after 30 minutes. Investigator found that this policy is highly suited to test the hypothesis of the study. The assessment of pain after administering IM injection was done through Dolor behavioral pain rating scale and numerical pain rating scale. The collected data were analyzed by using descriptive and inferential statistics. The investigator did not face any problems during the data collection procedure.

#### RESULTS

# SECTION 1: Description of demographic variables of patients.

- Most of the subjects in experimental group 30% in the age group of 58-67 years and in the control group 33.33% in the age group of 38-47 years.
- The majority of subjects in the experimental group (53.33%) were females and 63.33% in the control group were males.
- Majority of subjects in experimental and control group were educated up to primary and secondary (53.33% and 63.33% respectively).
- Most of the subjects (30%) were house wives and from private sector in the experimental group and

56.67% of subjects were house wives in the control group.

 Most of the subjects have no co-morbidity diseases in the experimental and control group (76.67% and 66.67% respectively).

# SECTION 2: Pain level of patients in experimental and control group.

Distribution of pretest pain level of patients who received IM injection in experimental and control group The table 1 showed the frequency and percentage distribution of level of pain during IM injection with routine technique. In the experimental group 56.67% of patients experienced mild pain, 40% had moderate pain and nobody experienced severe pain. In the control group 76.67% had mild pain, 23.33% had moderate pain and none of them had severe pain. The mean pain score of patients with experimental group was 6.83 with SD of 2.41. Whereas that of control group mean score and SD was 6.03 and 2.17 respectively.

# Distribution of posttest level of pain during IM injection in experimental and control group

Table 2 shows that the frequency and percentage distribution based on the level of pain during IM injection in experimental and control group. In the experimental group with helfer skin tap technique 96.67% had mild pain and 3.33% had moderate pain. Where as in the control group with routine technique 93.33% experienced mild pain and 6.67% had moderate pain. The posttest mean pain score of 3.27 and SD of 1.48. During the posttest the control group exhibited pain mean score of 5.233 and SD of 2.42. From the table it is evident that the mean pain score of experimental group is lower than that of control group.

# **SECTION 3: Effectiveness of Helfer skin tap technique on pain reduction among patients.**

The major hypothesis tested in the study was to assess whether Helfer skin tap technique was effective in reducing the pain during intramuscular injection. To provide a meaningful interpretation data related to this are analyzed descriptively and inferentially.

In the pretest experimental group 56.67% had mild pain, 40% moderate pain and in the posttest 96.67% had mild pain, 3.33% had moderate pain. In the control group during the pretest 76.67% had mild pain, 23.33% had moderate pain. In the posttest 93.33% experienced mild pain and 6.67% moderate pain. During the posttest intensity of the pain reduced in almost 40% of the people in the experimental group where as in the control group that reduction was nearly 17percentages.

Comparison of pretest pain score in experimental and



#### control group

Independent t test was adopted to compare the pretest pain score in both groups. This helped the investigator to assess the group difference related to the core phenomenon of interest before the intervention began.

# Table 4 - Comparisons of pretest mean ofexperimental and control group.

 $H_{\rm ol:}$  There is no significant difference between the mean pretest pain score of experimental group and control group.

Table 4 shows that p > 0.05. Therefore the null hypothesis is accepted. It indicates that there is no significant difference in pretest level of pain among experimental group and control group and also revealed the homogeneity of group in the perception of pain

#### Table 5: Comparison of mean pain score of pretest and posttest among experimental group.

Paired t test was adopted to compare the mean of experimental group before and after the intervention. H<sub>02</sub>: There is no significant difference between the mean posttest pain score of experimental group and the mean

pretest pain score of control group. Table 5 shows that p < 0.000. Therefore the null hypothesis is rejected. It indicates that there is a significant difference between pretest and posttest level of pain among experimental group. Since a decrease of 3.56 happened in the mean pain score after the intervention, it is concluded that Helfer skin technique is effective in reducing pain related to IM injections among experimental group.

#### Table 6: Comparison of mean pain score of pretest and posttest among control group.

Paired t test was adopted to compare the pretest and posttest mean score of control group before and after the intervention.

 $H_{03}$ : There is no significant difference between the mean pretest pain score and mean posttest pain score of control group.

Table 6 shows that p < 0.00. Therefore the null hypothesis is rejected. It indicates that there is a significant difference between pretest and posttest level of pain in control group. Since a decrease of 0.83 happened in the mean pain score after the intervention, it is concluded that pain is reduced in the participants belong to control group also.

# Table 7: Comparison of posttest mean of experimental and control group

Independent t test was adopted to compare the posttest pain score in both groups. This helped the investigator to assess the post group difference in relation to perception of pain.

 $H_{04:}$  There is no significant difference between mean posttest pain score of experimental group and control group.

Table 7 shows that p < 0.000. Therefore the null hypothesis is rejected. It indicates that there is a significant difference in posttest level of pain among experimental group and control group and also revealed the heterogeneity of group in the perception of pain. Since the posttest mean score of experimental group is lower than that of control group, it is concluded that Helfer skin tap technique was effective for reducing pain during IM injection.

Level of pain						
Group	Mild(0-6)	%	Moderate(7-14)	%	Mean	SD
	Frequency		Frequency			
Experimental	17	56.67	13	40	6.83	2.41
Control	23	76.67	7	23.33	6.03	2.17

### Table 1. Distribution of patients based on pretest pain level.

### Table 2. Distribution of patients based on posttest level of pain

Level of pain						
Group	%	Mean	SD			
	Frequency		Frequency			
Experimental	29	96.67	1	3.33	3.27	1.48
Control	28	93.33	2	6.67	5.23	2.42



	Pretest				Posttest				
	Mild	Mild Moderate		Mild Moderate		Mild		Modera	ate
Group	Frequency	%	Frequency	%	Frequency	%	Frequency	%	
Experimental	17	56.67	13	40	29	96.67	1	3.33	
Control	23	76.67	7	23.33	28	93.33	2	6.67	

#### Table 3: Comparison of the pre and posttest pain score among experimental group and control group.

#### Table 4: Comparisons of pretest mean of experimental and control group.

Group	Mean	SD	t value	P value
Pre-test experimental	6.83	2.41		
Pre-test control	6.03	2.17	1.35	.182

#### Table 5: Comparison of mean pain score of pretest and posttest among experimental group.

Group	Mean	SD	t value	P value
Pre-test experimental	6.83	2.41		
Post-test experimental	3.27	1.48	11.66	.000

Table 6: Comparison of mean pain score of pretest and posttest among control group.

Domain	Mean	SD	t value	P value
Pre-test control	6.03	2.17	3.026	.005
Post-test control	5.23	2.42		

#### Table 7: Comparison of posttest mean of experimental and control group

	Post-test				
Group	Mean	SD	t value	p value	
Experimental	3.27	1.48	3.79	.000	
Control	5.23	2.42			

#### DISCUSSION

According Zore and Ragina (2014) Nurses play a pivotal role in minimizing the pain and discomfort throughout any invasive procedure. The nurse can eliminate the discomfort and pain during I.M injection by helping the patient to assume comfortable position and by applying of various physical, psychological interventions. Physical interventions and injection techniques that minimize pain during injection provide benefits over other techniques because they can be easily incorporated into clinical practice without additional cost or time.

Present study revealed the perception of pain intensity is less when intra muscular injections are administered using Helfer Skin Tap Technique rather than routine technique. This finding come congruent with Serena (2010) conducted a quasi-experimental study (one group pretest and posttest design) on 60 patients in India to assess the effectiveness of Helfer skin tap technique on pain in relation to intramuscular injection. Study revealed that the effectiveness of Helfer Skin Tap Technique has produced a statistically highly significant in reducing pain during intra muscular injection among patients.

Another study was conducted to assess the Effectiveness of Helfer Skin Tap Technique and Routine Technique on Pain Reduction among Patients Receiving

Intramuscular Injection it shows that the perception of pain intensity is less when intramuscular injection is administered using Helfer Skin Tap

An experimental study was conducted to assess the effectiveness of Helfer skin tap technique on pain during IM injection among neonates born in labour room. The study findings revealed that 86% of the neonates in the experimental group had mild pain where as 86% of the neonates in the control group had severe pain which is consistent with the present study findings.

## LIMITATIONS

- The sample size of the study conveniently decided as 60.
- Generalization of study findings is not possible.
- Factors like disease condition, situational factors and individual characteristics might affect the level of pain in patients. This is not assessed in this study.

### RECOMMENDATIONS

- A similar study can be repeated on the large sample to validate and for better generalization of findings.
- Effectiveness of the study can be compared with other modalities like massage therapy, acupuncture, and hot application.



- Comparative study can be done in different hospitals on the same topic.
- Future study can investigate the relationship between level of pain and volume of medicine, speed of injection.

### CONCLUSION

The purpose of the study was to find the effectiveness of Helfer skin tap technique for reducing

REFRENCES

pain during IM injection. The study findings revealed that the pain level during IM injection with Helfer skin tap technique was lower than the IM injection with routine technique. Hence it can be concluded that the Helfer skin tap technique was effective in reducing pain level during IM injection.

#### CONFLICT OF INTEREST

There was no conflict of interest reported.

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