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RESEARCH ARTICLE

EFFECTIVENESS OF HELFER SKIN TAP TECHNIQUE ON PAIN REDUCTION AMONG THE PATIENTS RECEIVING INTRAMUSCULAR INJECTION

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ABSTRACT

Introduction: According to WHO, 12 billion intramuscular injections are administered annually throughout the world. On administering intramuscular injections, patients are experiencing pain and discomfort. Trying to provide injections with minimal pain is a part of nursing care to achieve greater outcome. Few researchers has found that injections and injection techniques revealed significant positive findings with non-pharmacologic pain management technique. Hence, it is necessary for them to provide helfer skin tap technique while giving intramuscular injection to reduce pain and discomfort.

Objectives: The study was undertaken to evaluate the effect of helfer skin tap technique on pain reduction among the patients receiving an intramuscular injection and to associate between the level of pain with selected demographic variables & medication related variables.

Methodology: The research approach was used experimental approach. Design was randomized control trial. Simple random sampling technique was used.

Results: The findings of the study revealed that among 134 patients, the post-test pain score in the study group and control group (0.67±1.17 vs. 4.95±1.77) were found to be statistically highly significant at $p<0.001$ level.

Conclusion: There was an effective pain reduction among the patients in study group who received Helfer Skin Tap Technique than the patients in the control group who received routine technique.

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INTRODUCTION

Nursing is the most integral part of the health care delivery system all over the world, and the nurses direct their actions and responsibilities towards its promotion, prevention, maintenance and restoration of health (Mohamady *et al*., 2017). Nurse's care for the clients in many situations and different settings in the process of intervening to promote comfort and to reduce pain. It is said to be the central concept of nursing care under which pain and pain management techniques spotted out to reach its expected goal (Zore, 2012). Pain is the most common complaint for the people to seek health care. Despite an abundance of research evidence and improvements in drug effectiveness and drug delivery technologies are available; pain continues to be not cured and also seems to be expensive for the patients who are in need for health care delivery service in general (Forren, 2013). Most of the procedures in the health care settings are associated with pain and discomfort. So, it clearly shows that the prime reason and common source of discomfort for most of the clients in the nursing care setting are pain (Zore, 2012). Among all those procedures, the most common procedure causing pain is the intramuscular injection. Intramuscular injection is a common yet complex technique which is used to deliver an excess amount of medication deep into the large muscles fibers of the body causing pain and distress to the client (Zore, 2012). In the administration of intramuscular injections, the choice of an injection site and injection techniques are also said to be the most important factors in the pain reduction (Yilmaz *et al*., 2016). According to WHO, there are 12 billion intramuscular injections are administered annually throughout the world. Of this, less than 5 % are for immunization, and the remaining are given for healthful purposes (Lala, 2003). Intramuscular injection is a type of medication administration that is to be directed through a skin puncture using a syringe and the needle

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by inserting deep into the large muscle fiber of the body for curative or prophylactic purposes. So while administering intramuscular injections, many of the patients are experiencing pain and discomfort related to injection (Kanika, 2011). Here makes the nurses think that invasive procedures are causing pain to all the clients in general and also it was identified that the most significant side effect related to injections is accompanying pain.

The International association for the study of pain defines it as a "disagreeable sensation and exciting feeling experienced by the individuals related with physical or hidden tissue damage, or described in terms of such damage (Rita *et al*., 2011)". So trying to provide injections to the patient with a less painful experience at their level of comfort is considered to be a leading part of nursing care to achieve greater outcome (Zore, 2012). Few studies related to pain associated with injections and injection techniques revealed significant positive findings with non-pharmacologic pain management technique (Sauls, 1999).

Helfer Skin Tap Technique is a non- pharmacological pain management techniques describes that mechanical stimulation over the skin can help to alter the balance between the small diameter fibers that carrying pain to the brain, and the large diameter fibers not carrying pain to the brain. The large diameter non-pain fibers will block or sedate the small diameter pain- taking through the effective skin tapping technique (Serena, 2010). So far only very few studies regarding Helfer Skin tap Technique have been done in India till now. The ultimate aim of the study is to bring this helfer skin tap technique into practice to reduce pain and to relieve the pain-related anxiety and fear among the patients who are receiving intramuscular injections.

MATERIALS AND METHODS

The research approach was experimental approach and design was randomized controlled trial which involves the assessment regarding effectiveness of helferskintap technique on the level of pain among the patients receiving intramuscular injectio. The study was conducted at JIPMER, Puducherry. The sample of the study was chosen by simple random sampling technique, in which it included 67 patients in study group and 67 patients in control group. Patients included in the study are those who are not exposed to any painful procedure within 1 hour of study, Patients who were getting analgesics (inj. Diclofenac and inj. Tramadol), Patients who were getting an intramuscular injection in injection OPD, casualty and trauma ward and both men and women between the age group of 21-60 years. The tool used in the study consist of two sections for data collection consists of two sections:

Section – I Consists of structured interview sheet (Demographic variables and Medication-related variables). Section – II consists of Numerical Pain Rating Scale. The tool was validated by experts from the field of medical and nursing department

INTERVENTION FOR THE STUDY GROUP

- Helfer skin tap technique is done only for one day for the patient who came to JIPMER to receive an intramuscular injection. The expected duration of participation by each participant is 15-20min.

Helfer skin tap technique: Tapping the muscle which is intended to use the palmer aspect of the fingers 16 times approximately 5 seconds before the insertion and counts 1.2 and three while removing the needle during intramuscular injection.

INTERVENTION FOR THE CONTROL GROUP

- Place the patient in a comfortable side lying position with knees flexed.
- After preparing the skin, uncap the syringe in the dominant hand. Make a large V with the thumb and index finger of the nondominant hand.
- Insert the needle at a 90 [degrees] angle into the muscle.
- Inject the medication slowly into the muscle after aspirating to avoid medicine into the vein.
- Remove the needle, and press the area gently.

DATA COLLECTION PROCEDURE

The investigators introduced themselves and established a good rapport with study participants. The desire for conducting the study was explained and assured to them that all data would be kept strictly confidential.

STUDY PROCEDURE

- Clearance and the informed consent was obtained from each participant who participated in the study.
- Simple random sampling technique was used to select the study participants.
- Demographic variables and medication related variables were collected through structured interview technique.
- The respondents were made comfortable before the conduction of the interview.
- Performed hand hygiene.
- Explained the procedure and provided privacy to the patient.
- Collected all the articles required near to the patient side.
- Have the patient assume the proper position.
- Loaded the medication from an ampule or a vial
- Located correct site by using landmarks
- Clean the injection site with spirit swab to remove the surface bacteria.
- After preparing the skin with spirit swab, the Uncapped syringe to be held in the primary hand, make a large "V" with the index finger and thumb of the nondominant hand and tap the muscle which is intended to use the palmer aspect of the fingers 16 times before the insertion. Immediately after skin tapping, insert the needle at a 90-degree angle into the muscle.
- After inserting the needle, aspirate to prevent injection into a vessel as per usual routine, inject the medication slowly and counts 1, 2 and three while removing the needle during intramuscular injection.
- Assessed the post test level of pain within one minute of administration of injection by using the numerical pain rating scale.
- Disposed of the needle in a puncture-proof container and syringe in the container.
- Washed hands and documented the post-intervention pain level of the patient within 1 minute.

RESULTS

Table 1. Post test level of pain among the patients receiving intramuscular injection between the groups

N = 134(67+67)

Group	No Pain(0)		Mild Pain(1 – 3)		Moderate Pain(4 – 6)		Severe Pain(7 – 10)	
	Frequency(n)	%	Frequency(n)	%	Frequency(n)	%	Frequency(n)	%
Experimental	49	73.33	16	23.88	2	2.99	0	0
Control	1	1.49	16	23.88	40	59.70	10	14.93

Table 2. Comparison of post test pain among the patients receiving intramuscular injection in the study and control group

N = 134(67+67)

Group	Mean	S.D	Unpaired 't' Value
Study	0.67	1.17	t = 15.429
Control	4.95	1.77	p = 0.000, S***

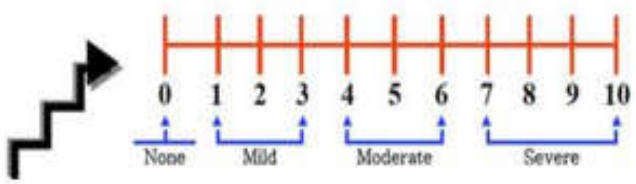
***p<0.001, S – Significant

Table 3. Association of post test level of pain among the patients receiving intramuscular injection with their selected variables in the study group

N = 67

Demographic Variables	No Pain (0)		Mild Pain (1 – 3)		Moderate Pain (4 – 6)		Chi-Square Value
	No.	%	No.	%	No.	%	
Age in years							χ^2=5.765 d.f=2 p=0.056 N.S
20 - 40 years	23	34.3	13	19.4	1	1.5	
41 - 60 years	26	38.8	3	4.5	1	1.5	
Gender							χ^2=6.078 d.f=2 p=0.048 S*
Male	35	52.2	6	9.0	1	1.5	
Female	14	20.9	10	14.9	1	1.5	
Religion							χ^2=0.757 d.f=2 p=0.685 N.S
Hindu	47	70.1	16	23.9	2	3.0	
Muslim	-	-	-	-	-	-	
Christian	2	3.0	0	0	0	0	
Others	-	-	-	-	-	-	
Marital status							χ^2=2.992 d.f=4 p=0.559 N.S
Married	29	43.3	12	17.9	2	3.0	
Single	17	25.4	4	6.0	0	0	
Divorced	3	4.5	0	0	0	0	
BMI							χ^2=0.308 d.f=2 p=0.857 N.S
Less than 18.5 (Underweight)	5	7.5	2	3.0	0	0	
18.5 - 25 (Normal weight)	44	65.7	14	20.9	2	3.0	
25 - 30 (Over weight)	-	-	-	-	-	-	
Volume of drug used for injection							χ^2=1.207 d.f=2 p=0.547 N.S
2 ml	34	50.7	10	14.9	2	3.0	
3 ml	15	22.4	6	9.0	0	0	
Site of injection							χ^2=0.005 d.f=2 p=0.997 N.S
Dorsogluteal	24	35.8	8	11.9	1	1.5	
Ventrogluteal	25	37.3	8	11.9	1	1.5	
Nature of pain							χ^2=9.470 d.f=2 p=0.009 S**
Sharp	48	71.6	14	20.9	1	1.5	
Pricking	1	1.5	2	3.0	1	1.5	
Burning	-	-	-	-	-	-	
type of drug							χ^2=0.640 d.f=2 p=0.726 N.S
Inj.Diclofenac	38	56.7	12	17.9	2	3.0	
Inj.Tramadol	11	16.4	4	6.0	0	0	
Position of the patient during injection							
Right lateral	38	56.7	14	20.9	1	1.5	
Left lateral	11	16.4	2	3.0	1	1.5	

***p<0.001, S – Significant



MAJOR FINDINGS OF THE STUDY

The majority of patients 37(55.22%) were in the age group of 20 – 40 years, 42(62.69%) were male, 65(97%) were Hindus, 43(64.18%) were married, 60(89.55%) were normal weight, 46(68.66%) used 2 ml of drug for injection, 34(60.75%) injected through ventrolateral, 639(94.03%) experienced sharp pain, 52(77.61%) used inj.Diclofenac and 53(79.10%) were in the left lateral position during injection. Whereas in the control group, majority 38(56.72%) were in the age group of 20 – 40 years, 43(64.18%) were male, 63(94.03%) were Hindus, 39(58.21%) were married, 50(74.63%) were normal weight, 44(65.67%) used 2 ml of drug for injection, 38(56.72%) injected through dorsolateral, 31(46.27%) experienced sharp pain and pricking respectively, 54(80.60%) used inj.Diclofenac and 50(74.63%) were in the left lateral position during injection.On assessing post test level of pain among the patients in the study and control group majority 49(73.33%) had no pain, 16(23.88%) had mild pain and only 2(2.99%) whereas in the control group majority 40(59.70%) had moderate pain, 16(23.88%), 10(14.93%) and 19(1.49) had no pain.

The first objective was to evaluate the effectiveness of helfer skin tap technique on pain reduction among the patients receiving intramuscular injection between the study and control group

The post-test pain score among patients receiving the intramuscular injection in the study group and control group was ($0.67\pm1.17v_s$ 4.95 ± 1.77). The calculated unpaired 't' value of t = 15.429 was found to be statistically highly significant at $p<0.001$ level. This clearly indicates that after the implementation of Helfer Skin Tap Technique on pain reduction among patients receiving intramuscular injection was found to be effective in reducing the pain among the patients in the study group than the patients in the control group who had received normal standard hospital measures.

The second objective is to associate between the level of pain with selected demographic variables and medication related variables

The demographic variables gender and nature of pain had shown statistically significant association with post test level of pain among patients receiving the intramuscular injection in the study group.

Conclusion

The study result showed that there was a difference between the two groups on gender and nature of pain which is highly significant. The introduction of helfer skin tap technique to the patients in casualty, injection OPD, and trauma ward is essential. Since the present study showed that helfer skin tap technique is effective in reducing pain and alleviating fear among patients regarding intramuscular injection, it can be implemented as a useful measure to reduce the pain related to intramuscular injection.

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