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RESEARCH ARTICLE

A STUDY TO ASSESS THE EFFECTIVENESS OF HELPER SKIN TAP TECHNIQUE ON PAIN DURING INTRAMUSCULAR INJECTION AMONG INFANTS IN SELECTED HOSPITAL AT MYSURU

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ABSTRACT

Introduction: Pain is a common and disagreeable sensation for children and adult. Every child has his or her own perception of pain. Routine immunizations are the most frequent painful medical procedure during childhood. Health care professionals trying to provide vaccine to the infants with a less painful experience at their level of comfort, skin tapping (Helper skin technique) is one of the methods which keeps the muscles relaxed and thus reduce pain while administering IM injection. **Aim:** The aim of the study to assess the effectiveness of helper skin tap technique on pain during intramuscular injection among infants in selected hospital at Mysuru. **Methodology:** True Experimental, Post-test only Control group design was adopted for the study. Systematic random sampling technique was used to select the study subjects, 30 each in experimental and control group. Helper skin tapping was administered only to infants in experimental group. Pain scores were assessed by FLACC pain scale at 0 minute. **Results:** The analysis of the findings high lights that there was a significant difference between the post-test pain scores of infants during IM injection at 0 minute in control and experimental group which was statistically tested using independent 't' test ($t_{(58)} = 5.74$; $p < 0.05$) was found to be significant at 0.05 level of significance. The results of the study also highlighted that pain scores of infants during IM injection at 0 minute with Helper skin tap technique had no significant association with their selected personal variables. **Conclusion:** The study concluded that Helper skin tap technique was effective in reducing the vaccination pain among infants.

INTRODUCTION

It is difficult to define pain as is it multidimensional phenomena. It is an individual and subjective experience and no two individuals perceive it as same. As it might be differ in intensity and time duration. According to the definition given by international association for study of pain (IASP) is as "unpleasant sensory and emotional experience combined with the damage of actual or potential tissue, or describe in terms of such damage". According American pain society, Pain is as "the fifth vital sign" so it focuses on its management during pain induced procedures. It also pulls attention of health care professionals to the importance of effective pain management strategies. The world health organisation estimates that 12 billion injections are given annually and that approximately 5% are childhood vaccinations.¹ Children are one third of our population and they are considered as National Wealth. Hence Paediatric care has its implication on the ultimate progress of the nation. Early childhood (0-5years) includes the following periods like infants, toddler and preschool age. During childhood, immunization injections are the most common sources of iatrogenic pain. Therefore management of the pain from childhood, immunization injections is essential.²

Vaccinations are the safest and most effective way to prevent serious illness and death. In fact, vaccinations prevent approximately 2.5 million deaths every year. However, despite the success of vaccinations in preventing morbidity and mortality, some countries struggle to maintain high levels of vaccination update.³ Medicine is considered as one of the most important necessity to all of us. Medications are used to diagnose, treat, or prevent illness.⁴ Medication is a substance used in the diagnosis, treatment, cure, relief, or prevention of health problems.⁵ The route prescribed for administering a medication depends on the properties and desired effect of the medication and the patients physical and mental condition. The various route of medication administration are oral routes, sublingual administration, buccal administration, parenteral routes and topical administration.⁶ Intra muscular injection is common yet a complex technique used to deliver medication and vaccination deep into the large muscles of the body. Intra muscular injection route provides faster drug absorption than the subcutaneous route because the muscle has grater vascularity. There are several factors which influence person experience of pain during Intra muscular injection for example anxiety, culture, age, gender, and expectation of pain relief. These factor may increase or decrease perception of pain during intramuscular injection.⁷

Injection for vaccination, the most common source of iatrogenic pain in childhood. It is administered repeatedly to almost all children throughout infancy, child hood and adolescence. The pain associate with such injections is a source of distress for children, their parents and those administering the injection. If not addressed, this pain can lead to pre procedural anxiety in the future, needle fear and health care avoidance with vaccination schedules. It is estimated that up to 25% of adult have a fear of needles, with most fear developing in childhood. About 10% of population avoids vaccination and other needle procedure because of pain.⁸ In 1998, Ms. Joanne Helfer made an attempt to alleviate pain due to intra muscular injections by developing Helfer skin tap technique in which tapping of the skin was made over the injection site before and during the procedure. It is an accepted fact that there is reduced pain in giving injection into a relaxed muscle. As well as, Helfer skin tapping technique is one of the mechanical stimulations over the skin that can alter the small diameter fibers which carry pain to the large diameter fibers which do not carry the pain.⁹ Helfer skin tap technique is tapping over the intramuscular site with the palmer aspect of finger 16 times before and the 3 counts during the procedure. Skin tapping in the area close to the site of an immunization injection will activate A-beta neuron which will close the gate. Transmission of pain signals arising from the injection site will, therefore, be inhibited at the level of the spinal cord. The proximity of tapping and injection site would be expected to facilitate gating for the appropriate spinal neurons¹⁰

Innovative Evidenced Based Nursing interventions for minimizing pain during childhood vaccination can help to prevent distress, development of needle fear and subsequent health care avoidance behaviours such as non-adherence with vaccination schedule. Most positive experience during vaccine injection also maintains and promotes trust in health care providers³

OBJECTIVES

- To assess the pain level of infants during IM injection with Helfer skin tap technique.
- To compare the pain level of infants during IM injection with and without the use of Helfer skin tap technique.
- To find out the association of pain scores during IM injection among infants with their selected personal variables.

HYPOTHESES

H₁: There will be statistical significant difference between the post-test pain scores of infant undergoing IM injection at 0 minute in Experimental and control group

H₂: There will be statistical significant association between the pain scores of infant undergoing IM injection at 0 minute with Helfer skin tap technique and their selected personal variables.

RESEARCH METHODOLOGY

Research design adopted for the study was True Experimental, Post-test only control group design. Systematic random sampling technique was adopted to select the study subjects, 30 each in experimental and control group. Helfer skin tapping was administered only to infants in experimental group. Personal Proforma was used to assess the selected personal variables of infants. Pain scores were assessed by FLACC pain scale at 0 minute. Tools were content validated by six experts in the field of Paediatrician and Nursing. The reliability was 0.92 and the tool was found to be reliable.

RESULTS

SECTION I. DESCRIPTION OF SELECTED PERSONAL VARIABLES OF STUDY SUBJECTS

Table 1 shows that in control group majority 53.3% of the samples were in the age group of 10 weeks whereas in experimental group majority 43.3% of the samples were in the age group of 6 weeks. Regarding Gender, in control group most 63.3% of the samples were male, whereas in experimental group, most 60% of the samples were male. In control group majority 80% of the samples were under 32 weeks of gestation, whereas in experimental group majority 70% of the samples were between 32-42 weeks of gestation. Major portion of samples 53.3% in experimental and control group were awake. Regarding Frequency of vaccination Majority 53.3% of the samples in control group had taken II dose of vaccination, whereas in experimental group majority 43.3% of the samples had taken III dose of vaccination.

SECTION II

EFFECTIVENESS OF HELPER SKIN TAP TECHNIQUE ON PAIN DURING IM INJECTION AMONG INFANTS

Description of Pain scores of infants during IM injection in control and experimental group: The data presented in Table 2 shows, the mean pain score of infants in control group is 6.9 with the Standard deviation ± 0.87 and ranged from 3-8, whereas in experimental group the mean pain score is 3.9 with the standard deviation of ± 1.43 and ranged from 2-7. This indicates that there was decrease in mean pain scores of infants with helper skin tap technique.

Frequency and percentage distribution of Pain scores among infants in experimental and control group: The data presented in the above Table 3 shows that majority 22 (73.3%) of the infants in control group perceived severe pain and 8 (26.6%) perceived moderate pain, whereas in experimental group majority 16

Table 1. Frequency and percentage distribution of infants during IM injection in control and experimental group according to their selected personal variables

Sl No	Sample Characteristics	Control group n=30		Experimental group n=30	
		Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
1	Age in weeks				
	1.1 6	7	23.3	13	43.3
	1.2 10	16	53.3	6	20
	1.3 14	7	23.3	11	36.6
2	Gender				
	2.1 Male	19	63.3	18	60
	2.2 Female	11	36.6	12	40
3	Gestational week				
	3.1 < 32	3	10	4	13.3
	3.2 32-42	24	80	21	70
	3.3 >42	3	10	5	16.6
4	Status of the child				
	4.1 Awake	16	53.3	16	53.3
	4.2 Asleep	14	46.6	14	46.6
5	Frequency of vaccination				
	5.1 I dose	7	23.3	13	43.3
	5.2 II dose	16	53.3	6	20
	5.3 III dose	7	23.3	11	36.6

(53.3%) of the sample perceived mild pain, 11 (36.6%) perceived moderate pain and 3 (10%) of the infants perceived severe pain.

Table 2. Mean, median, standard deviation and range of pain scores of infants in Control and Experimental group

n=60				
Group	Mean	Median	SD	Range
Control Group n=30	6.9	7	±0.87	3-8
Experimental group n=30	3.9	3	±1.43	2-7

Table 3. Frequency and percentage distribution of pain scores among infants during IM injection at 0 minute in Control and Experimental group

Level of Pain perception	Control group		Experimental group	
	Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
Relaxed and comfortable	0	0	0	0
Mild (1-3)	0	0	16	53.3
Moderate (4-6)	8	26.6	11	36.6
Severe (7-10)	22	73.3	3	10

SECTION 3: ASSOCIATION BETWEEN PAIN SCORES OF INFANTS DURING IM INJECTION AT 0 MINUTE IN EXPERIMENTAL GROUP AND THEIR SELECTED PERSONAL VARIABLES

To find out the association between the pain scores of infants undergoing IM injection with Helfer skin tap technique and selected personal variables, chi-square was computed and the following null hypothesis was stated.

H₀₂: There will be no statistical significant association between the pain scores of infant during IM injection with Helfer skin tap technique and their selected personal variables

Table 4. Chi-square values between Pain scores of infants at 0 min in Experimental group and their selected personal variables

n=30				
Sl No	Sample Characteristics	Level of pain perception		
		Mild	Moderate and Severe	Chi square
1	Age in weeks			5.06 [#]
	1.1 6	9	4	
	1.2 10	4	2	
	1.3 14	3	8	
2	Gender			0.19
	2.1 Male	9	9	
	2.2 Female	7	5	
3	Gestational week			0.77 [#]
	3.1 < 32	3	1	
	3.2 32-42	11	10	
	3.3 >42	2	3	
4	Status of the child			1.24
	4.1 Awake	7	9	
	4.2 Asleep	9	5	
5	Frequency of vaccination			3.96 [#]
	5.1 I dose	9	4	
	5.2 II dose	4	2	
	5.3 III dose	3	8	

$\chi^2(1) = 3.84$, $\chi^2(2) = 5.89$; $P < 0.05$, # Yates correction

The data presented in the Table 4 shows that no significant association found between level of pain scores of infants undergoing IM injection with Helfer skin tap technique and their selected personal variables at 0.05 level of significance. Hence, null hypothesis H₀₂ is supported.

CONCLUSION

The study revealed that Helfer skin technique is one of the most effective method for pain reduction during intra muscular vaccination. This technique can be adopted during vaccination among infants as non-pharmacological therapy in the management of pain.

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