

Pain Level of Infants Receiving Helder Skin Tap during Vaccination

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ABSTRACT

Background for the study: As part of the Immunization schedule every child in India are exposed to numerous injections between the ages of 0-1 year, which inflict pain for children. If the pain is not addressed it causes pre procedural anxiety in the future and fear about needles which may lead to non-adherence to vaccination. Various recommendations and practices are experimented to reduce the pain during vaccination in children and one among the technique is Helder skin tap which is proved to reduce the pain in infants. The present study intended to assess the pain during intramuscular injection using Helder skin tap among children at selected hospitals of Pathanamthitta district.

Methodology: The investigator followed a quantitative approach and the research design used in this study is one group posttest only design. The total sample size was 70 children between 0 to 12 months. Gate control theory of pain was the conceptual framework adopted and standardized FLACC Pain scale was used to assess the pain level of children.

Results: The result reveals that the majority (57%) of children has experienced mild pain with the technique of Helder skin tap in children. There was no significant association between variables under study and the pain score obtained. The study explores a method namely Helder skin tap for minimizing the pain experienced during vaccination in infants.

Key words: infants, Helder skin tap, pain, gate control theory

INTRODUCTION

Several methods are used nowadays to reduce pain in children. Both invasive and noninvasive alternatives are used by the healthcare team to alleviate the pain during childhood vaccination. The word infant has derived from Latin word "Infans" which means "unable to speak" or "speechless". Cry is the only way by mean an infant respond to any stimuli and mothers never tolerate their pain. India has improved the percentage of fully immunized children from 44 percent in 2006 to 62 percent in 2016 and is a country which gives much importance to the prevention of killer diseases existing in our country. [1] Though there was progress in vaccination, childhood vaccination coverage was slow to rise and

38% of children failed to receive all basic vaccines in the first year of life. One of the factors that limits vaccination coverage is the fear of side effects of vaccination and pain is the commonest side effects perceived by the parent. [2] Pain caused by the intramuscular injections can be an unpleasant feeling for children leading to agony and fear among parents. Procedural pain reducing methods are studied and health care professionals adapt these methods while dealing the children. Every child is compulsorily exposed to vaccination in their childhood. They need more psychological support and care to overcome the common side effect of pain caused by vaccination. Providing pain assistance is measured as a basic social right and it is the

concern of the paediatric nurse. [3]

Different approaches are used by the nurses to reduce pain in the course of intramuscular vaccination such as applying pressure, tapping the skin, applying heat and cold³. The pressure applied at the site produces non painful stimuli that block the transmission of painful stimuli to CNS resulting less pain perception. Helfer skin tap or tapping over the skin is one among those methods which enables the muscles to be relaxed. Joanne Helfer in 1998, had made an attempt to relieve pain due to intramuscular injection by developing Helfer skin tapping technique where tapping of the skin over the injection area. [4] The concept of gate control theory of pain is correlated and by tapping the injection site makes muscle relaxation and pain is reduced. [3,4] The usefulness of Helfer skin tap technique on pain during immunization between sixty infants was steered in by a quasi-experimental research design. FLACC scale was used to identify the pain level of infants during vaccination and statistically significant difference was found between the levels of pain among experimental and control group at 0.001 level of significance. It is recommended that Helfer skin tap technique in nursing practice to reduce pain among children receiving vaccination. [5]

Though the health care professionals are aware about various pain relief measures use in intramuscular injections, it is important to ensure a safe, painless and good injection technique in children. A good communication enables to transfer the knowledge to other staffs and parents.

Objectives:

Assess the pain level of infants during vaccination receiving Helfer skin tap during vaccination.

To associate the pain level of infants during vaccination with selected demographic variables.

Hypothesis

H₁: There will be significant association between the pain level of infants with selected demographic variables.

MATERIALS & METHODS

A quantitative approach, experimental design was used for the study. Simple random sampling technique was used to select a sample size of 70 infants and they were selected while visiting the immunization clinic. The infants whose parents were not willing and infants who were receiving more than one injection in a visit were excluded. Demographic variables of the study included age, sex, weight, and vaccine administered. Data was collected after obtaining permission from the ethical committee of hospital and consent were drawn from parents. Standardized FLACC pain scale was used to mark the pain experienced by the infant and the tool was found to be reliable (r = 0.8). Helfer skin tap was applied over the injection site before, during and after the immunization. Descriptive and inferential statistics were used to assess the pain level and of infants during vaccination.

DATA ANALYSIS & RESULTS

The analysis was carried out in accordance with the objectives of the study. The obtained data were sorted and descriptive analysis (frequency and percentage) was performed to condense the demographic variables and the association between the level of pain and variables were analyzed with inferential statistical tests (chi square).

Table 1: Frequency and percentage distribution of samples based on demographic variables.

(n=70)

SL NO	Demographic Variable	Frequency (f)	Percentage (%)
1	Age in months		
	1-2 months	13	18.6
	2.1- 3 months	30	42.9
	3.1- 4 months	27	38.5
2	Gender		
	Male	23	32.9
	Female	47	67.1
3	Weight		
	3-5 kg	34	48.6
	5.1-7 kg	35	50.0
	7.1-9 kg	1	1.4
4	Vaccine administered		
	DPT	25	35.7
	Pentavac	45	64.3

Table 1 depicts that 42.9% infants of 2.1 to 3 months. 38.5 % were of 3.1 to 4 months and 18.6 % were of 1- 2 months of age. Majorities (67.1%) were female and 32.9% were male infants. Half (50%) had

the body weight of 5.1 to 7 kg and 48.6% had 3-5 kg of weight. Majority (64.3%) of the samples had Pentavac vaccine and 35.7% had DPT vaccine.

Table 2: Frequency and percentage distribution of the level of pain based on demographic variables (n=70)

Variable	Level of Pain							
	No Pain		Mild Pain		Moderate Pain		Severe Pain	
	f	%	f	%	f	%	f	%
Age								
1 - 2 months	2	3	7	10	3	4	1	1
2.1 - 3 months	1	1	20	28	8	12	1	1
3.1 - 4 months	6	9	13	19	8	12	0	0
Gender								
Male	3	4	15	22	4	6	1	1
Female	6	8	25	36	15	22	1	1
Weight								
3 - 5 kg	4	6	21	30	9	13	0	0
5.1 - 7 kg	5	7	18	26	10	14	2	3
7.1 - 9 kg	0	0	1	1	0	0	0	0
Vaccine administered:								
DPT	2	3	17	24	6	8	0	0
Pentavac	7	10	23	33	13	19	2	3

The data in table 2 reveals that among the demographic variables, infants who were in 1- 2 months 10% experienced mild and 4% had moderate pain, in 2.1 to 3 months of age 28% experienced mild and 12 % had moderate pain and in 3.1– 4months of age 19% experienced mild and 12% had moderate pain. Female infants 36% and 22 % experienced mild and moderate pain respectively when compared to male infants who experienced 22 % mild and 6% moderate pain. Among the variable Weight, children with 3 to 5 kg had mild (30%) and moderate (13%) pain than of 5.1 to 7 kg weight who experienced mild 26% and moderate 14%. In the category of vaccine administered majority (45 infants) had Pentavac injection and among that 33% had mild and 19% had moderate pain compared to the 24% had mild pain who received DPT injection.

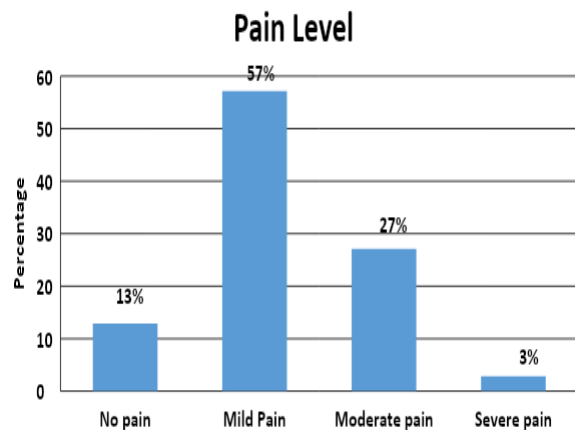


Figure 1: Distribution of pain level of infants with HST technique

The above figure depicts that majority (57%) of infants experienced mild pain, 27% experienced moderate, 13% had no pain and only 3% had severe pain.

The association of pain level with variables age, gender, weight and vaccine was calculated using chi square at 0.05 significance level and no significant association was found on the level of pain during intramuscular injection with Helfer skin tapping technique and demographic variables.

Table 3: Mean and SD of post level of pain of infants during Intramuscular injection

Experimental group	Mean	SD
	2.68	1.95

Table 3 reveals that the mean pain score is 2.68 which show that average infants experienced mild pain during intramuscular injection with Helfer skin tap technique.

Table 4: Distribution and the association between level of pain and demographic variables. (n=70)

Variable	Level of pain								P-value (χ^2 value)
	No pain		Mild pain		Moderate pain		Severe pain		
	f	%	f	%	f	%	f	%	
Age:									
1 - 2 months	2	3	7	10	3	4	1	1	0.33
2.1- 3 months	1	1	20	28	8	12	1	1	(6.91)
3.1 – 4 months	6	9	13	19	8	12	0	0	
Gender:									
Male	3	4	15	22	4	6	1	1	0.60
Female	6	8	25	36	15	22	1	1	(1.86)
Weight:									
3 - 5 kg	4	6	21	30	9	13	0	0	0.79
5.1 - 7 kg	5	7	18	26	10	14	2	3	(3.17)
7.1 - 9 kg	0	0	1	1	0	0	0	0	
Vaccine administered:									
DPT	2	3	17	24	6	8	0	0	0.43
Pentavac	7	10	23	33	13	19	2	3	(2.77)

DISCUSSION

The present study evaluated the level of pain of infants during intramuscular injection with Helfer skin tap technique (HST). The tapping technique was believed to have an impact and was done in order to relieve the level of pain during vaccination among infants. Immunization is a painful process and the current study tried to minimize the pain during intramuscular vaccinations with Helfer skin tap technique. The findings of the study were supported with several studies done in Western countries and in India. (6-8) The infants experienced mild to moderate pain only with Helfer skin tap technique. The mean pain of 2.68 signifies that average infants had only mild pain. An experimental study with and without the intervention of Helfer skin tap technique was done using FLACC and video recording to assess the level of pain and the duration of cry. It was found that the mean score obtained (6.7) without Helfer skin tap was higher than the mean scores (5.3) with the technique. There was no significant association between the level of pain and baseline variables. [9] The present study used FLACC pain scale which is an effective and reliable tool in assessing the pain in children up to 7 years. As the children are less communicative in these years FLACC scale helps to identify the intensity of pain each child experience. FLACC relies on behavioural indicators to assess pain and serves as a checklist that

guides the health care professional in examining the child’s behavior in response to pain. Interpretation of FLACC scale score includes -Score 0: No pain, Score 1-3: Mild pain, Score 4-6: Moderate pain and Score 7-10: Severe pain. There was no significant association with pain level of infants and selected variables like age, gender, weight and vaccine administered. These findings are in par with the quasi-experimental study done in Bangalore where there was difference in the pain score and no significance found with the variables. [10] The mechanical stimulation applied to the intramuscular site of injection in children can help to alter the balance between nerve fibers that carry pain to the brain and the large diameter fibers not carrying pain to the brain. The tapping technique block or sedate the pain carrying small fibers and thus the infant experience less pain during vaccination administered through intramuscular injection. [7] In earlier infancy there are vaccines which are administered through the intramuscular route and this reduction in pain due to Helfer skin tap can result in the better adaptation of infants to the health care.

CONCLUSION

Based on the findings of the study, it can be inferred that Helfer Skin Tap can be strongly recommended as a compulsory step in intramuscular injection among infants. This intervention should be promoted as an

institutional policy and implemented as a routine in caring for all children Irrespective of their age in management of pain.

Nursing implications

Nurses have an important role in the management of pain in the hospital as well in the community. The Helfer skin tapping technique is a useful intervention to be practiced by nurses and parents for effective pain management in children.

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