

Rhythmic Skin Tapping : An Effective Measure to Reduce Procedural Pain during IM Injection

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Pain management is one of the main facets of nursing care, where nurses need to be competent. Nurses are obligated to mitigate every kind of pain, even the “minor” procedural pain. Undoubtedly, procedural pain is an important source of discomfort for hospitalised patients from which, all instinctively try to escape. Among others, intramuscular (IM) injection is a common procedure that nurses frequently carry out, which causes pain and distress to the recipient. Pain management during invasive procedure is a challenge to the direct care providers.

In 1998, Ms Joanne Keiffer Heifer¹ BSN, RN, made an attempt to alleviate pain due to IM injection by developing ‘Heifer Skin Tap technique’ in which tapping of the skin over the injection site before and during the procedure is demonstrated. It is an accepted fact that there is reduced pain in giving injection into a relaxed muscle. Tapping over the skin is one of the various techniques to keep the muscles relaxed. This study explored the effect of ‘rhythmic tapping’ over the skin before and during IM injection in relation to pain.

Objectives

1. To determine the pain level of adult patients during IM injection with usual standard technique.

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2. To determine the pain level of adult patients during IM injection with ‘Heifer skin tap technique’.
3. To compare the pain levels with and without the use of ‘Heifer skin tap technique’
4. To compare the pain level with selected variables.

Conceptual framework

The conceptual framework used for the study was developed on the basis of Melzack & Wall’s ‘Gate-control theory’ (1965). This theory proposes that there is interaction between pain and sensory modalities. Mechanical stimulation over the skin can alter the balance between the small diameter fibres that carry pain to the brain, and the large diameter fibres that do not carry pain. The large diameter non-pain fibres block the slower small-diameter pain carrying fibres through the effective skin tapping.

Methodology

One group pre-test post-test design was adopted for this study. A purposive sampling technique guided by inclusion criteria was used to select 60 adult patients from orthopaedic and trauma ward.

Data collection tool includes:

1. Interview schedule for the collection of baseline information,
2. 0-10 numerical pain intensity scale to assess pain level after each injection,
3. A table to record pulse rate

before and after the administration of injection.

Data collection method

Data collection was done for 6 weeks from 16 July 07 to 25 August 07 from 60 adult patients who were on Inj Tramadol 50 mg or Inj Piroxicam 40 mg IM and are admitted either in the orthopaedic ward or in the trauma ward of St John’s Medical College Hospital, Bangalore. Out of 60 samples, 30 samples received Inj Tramadol and remaining half received Inj Piroxicam.

Baseline information was collected from the client through structured interview schedule prior to the study. Each sample was given 4 injections in which two injections were given with usual standard technique and remaining with skin tap technique. Pain assessment was done soon after each injection by using 0-10 numerical pain intensity scale by a clinical instructor in order to avoid personal bias of the investigator. Pulse rate also was checked with pulse oxymeter before and after each injection, since it was one of the baseline variables. The injection technique to be used for each sample was decided by lot-replacement. Schematic representation of the study design is given in Figure 1.

Findings of the Study

- The overall mean pain intensity by using skin tap technique (1.5 ± 1.1) was much lower than the pain

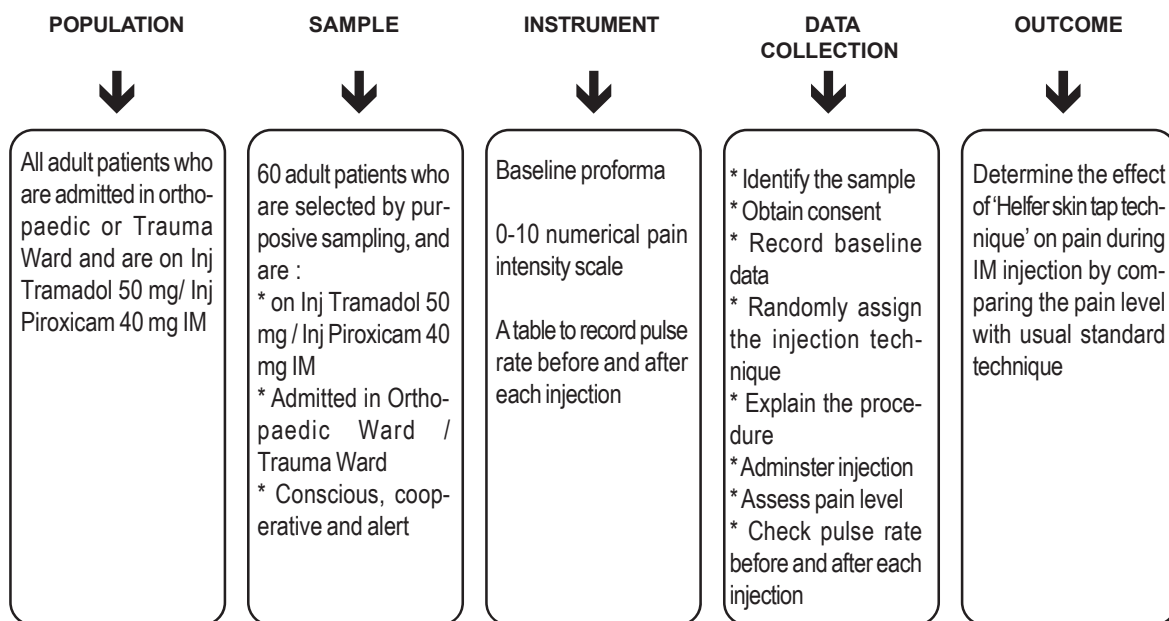


Fig 1 : Schematic Representation of the Study Design

Table 1: Paired 't' test to compare the pain intensity due to IM injection by the application of two different techniques (n=60)

Injection Technique	Pain Level			Test of Significance		
	Mean	Range	SD	Paired 't' test	df	'p' value
UST	2.9	1.0-5.5	1.2	13.23	59	< 0.001
HST	1.5	0-4.0	1.1			

t (59) = 3.460, p < 0.001

Table 2: Mean, Range and SD of procedural pain level induced by two types of drugs with two different injection techniques, n=30+30

Drug	Pain Level					
	UST			HST		
	Mean	Range	SD	Mean	Range	SD
Inj Tramadol (50 mg)	2.6	0-5.5	1.1	1.3	0-2.5	1.0
Inj Piroxicam (40 mg)	3.3	1-6	1.2	1.7	0-4	1.1

level by the usual technique (2.5 ± 1.3 , $p < 0.001$ (Table I).

- The mean difference in pulse rate, after the IM injection was found to be less

with skin tap technique (0.1) than the usual technique (1.6 , $p < 0.001$).

- Administration of Inj Piroxicam was more painful (3.3 , 1.7), than Inj

Tramadol (2.6 , 1.3), with usual as well as skin tap techniques. But skin tapping helped to reduce the pain intensity for both injections to cer-

tain extent (Table 2).

- The mean value of pain level is greater in females than in males with both techniques.
- There was no significant association between pain level and other baseline variables like age, diagnosis, previous hospitalisation and education.

Recommendations

- The study can be replicated on a large sample in order to validate the findings and make generalisations.
- A study could be done in dif-

ferent setting, to evaluate the findings of the present study.

Conclusion

The above observations highlight the effectiveness of 'skin tap technique' to reduce procedural pain. The study also helps to relate theoretical knowledge and quality care, which can be implemented by nursing personnel, in the daily practice.

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