

# Effectiveness of Icepack Application at Injection Site for Reducing Pain before Administering Intramuscular Injection

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**Abstract:** *The present study was conducted to assess the effectiveness of icepack application at injection site for reducing pain on antenatal mothers having T.T. injection at People's Hospital. An order to achieve the objectives, an evaluative research approach and true experimental design was adapted and non probability convenience sampling technique was used to select the samples. The study was conducted over a period of 3 weeks. The data were collected from 40 antenatal mothers by using structured questionnaire and standardize pain rating scale VAS.*

**Keywords:** Icepack, Intramuscular injection (IM), antenatal mothers, antenatal OPD, Injection T.T.

## 1. Introduction

"Pain has no future but itself," wrote the 19th century American poet Emily Dickinson, speaking about pain.<sup>1</sup> As the 21st century unfolds, however, advances in pain research are creating a less grim future than that portrayed in Dickinson's verse, a future that includes a better understanding of pain, along with greatly improved treatments to keep it in check. Pain has been identified as the fifth vital sign by Australian and New Zealand College of Anaesthetists.

Pain is defined by the International Association for the Study of Pain (IASP) as "an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage." It occurs with many disorders, diagnostic tests, and treatments. Pain associated with treatment includes the needle stick pain, postoperative pain and so on. Although we cannot adequately describe pain, we have developed effective ways of treating it.<sup>2</sup>

## 2. Need of the study

Health status of individuals may be positively influenced by the well being and experience of comfort. Individuals get hospitalized for a wide range of acute illness and injuries. Patient with health alteration, restore or maintain their health using a variety of strategies and medications are most frequently used to manage disease.<sup>3</sup> These medications are administered through various routes, depending on their property as oral, parenteral, topical etc. parenteral administration of medication is a common nursing procedure. Nurses give parenteral medication through intradermal, subcutaneous, intramuscular, intravenous etc, because these medications are absorbed more quickly than oral routes.

Medications have been administered by Intramuscular injections for more than a century. This route of administration is most used and preferred, particularly when the medications are administered in small amount like

codeine, morphine, gentamycin, prednisone, diclofenac, paracetamol etc.<sup>4</sup> Among others, intramuscular (IM) injection is a common procedure that nurses frequently carry out, which causes pain and distress to the recipient. Pain originating from intramuscular injection (IM) should not be underestimated, because a painful injection might incite severe fear of injection, which may lead a patient to delay seeking medical help.<sup>5</sup>

### 2.1 Statement of the problem

An Experimental Study to Assess the Effectiveness of Icepack application at Injection site for reducing Pain Before Administering Intramuscular Injection Among antenatal mothers in Antenatal OPD of People's Hospital, Bhopal City."

### 2.2 Objectives of the study

- 1) To apply icepack to the experimental group of antenatal mothers before administering IM injection Tetanus Toxoid 0.5 ml.
- 2) To assess the level of pain of antenatal mothers belonging to experimental group who are receiving IM injection after Icepack application.
- 3) To assess the level of pain of control group among antenatal mothers after administering intramuscular injection without Icepack application.
- 4) To evaluate the effectiveness of Icepack application in reducing pain after administering intramuscular injection T.T. 0.5 ml of experimental group and control group.

### 2.3 Hypotheses

**H<sub>1</sub>**:- There is difference in the pain perception of the control group and experimental group who are receiving Icepack application.

## 2.4 Research Methodology

**Research approach:** Quantitative research approach was used in this study.

**Research design:** An experimental post-test only control group research design

**Setting:** Antenatal OPD of People's Hospital, Bhopal City.

**Population:** Mothers having pregnancy.

**Sampling Technique:** Non probability convenience sampling technique was used.

**Sample size:** 40

### Criteria for sample selection

#### Inclusion criteria

- Antenatal mothers who are receiving intramuscular injection.
- Antenatal mothers who are under the age group of 20-50 years.
- Antenatal mothers who are willing to participate in the study.
- Able to follow instruction

#### Exclusion criteria

- Antenatal mothers who are not willing to participate.
- Antenatal mothers with complicated pregnancy.

#### Tools used:

##### Tool 1- Interview schedule:-

It consists of two parts:-

Part A:-Personal data of the antenatal mothers.

Part B:-Medical data of the antenatal mothers.

##### Tool 2-Self reporting pain assessment scale

**Data collection procedure:** The investigator obtained permission from the concerned authorities. The purpose of the study was explained to the subjects. The main study was conducted from 15/01/15 to 06/2/15 among 40 antenatal mothers.

The samples were selected by convenience sampling technique. The investigator had given self introduction, explained the purpose of the study, subject's willingness to participate in the study was ascertained confidentiality was assured to all the subjects to get their co-operation.

Welcomed and interviewed the subjects to elicit their personal and medical data. The interview was conducted at the nurses' station in the injection room. The subjects were made comfortable and assessed for any needs that needed to be fulfilled prior to conducting the interview. Assessed the height and weight of the antenatal mothers. Given IM injection T.T. 0.5 ml to all the subjects in both the control and the experimental group.

Elicited the pain level of the subjects after receiving IM injection T.T. 0.5 ml, without being aware as to whether the subjects belonged to the control or the experimental group.

The investigator assessed the baseline pain after administration of the injection. Post test score of pain

obtained following the application of icepack for 3 minutes. Later opinion regarding intramuscular injections and effectiveness of ice pack therapy obtained using structured interview.

The pain level as verbalized and shown in to the self reporting pain assessment scale by the antenatal mothers was recorded on the pain scale immediately.

## 3. Results

A. Demographic profile of the antenatal mothers:

- Age:** The majority of antenatal mothers 60% & 75% are from age group 20-30years.
- Religion:** The majority of antenatal mothers 60% & 55% are from Hindu.
- Education:** From control group and experimental group the antenatal mothers 0% & 0% are illiterate.
- Socio-economic status:** From control group and experimental group of antenatal mothers 20% & 20% are from less than 10000.
- Occupation:** From control group and experimental group the majority of antenatal mothers 50% & 55% are Housewife.
- Body Mass Index:** BMI of antenatal mothers from control group and experimental group of antenatal mothers 80% & 85% are 18.5-25 normal weight.
- Parity:** Parity of antenatal mothers from control group and experimental group the antenatal mothers 45% & 55% are primipara.
- Weeks of gestation:** The majority of antenatal mothers 80% & 70% are from 1st trimester.
- Previous Delivery:** From control group and experimental group the antenatal mothers 35% & 25% has normal delivery.

### B. The pain level of subjects after receiving IM injection with or without icepack application:

The average pain score was 5.9 in control group without ice pack application (before administering IM injection T.T. 0.5ml), and 4.15 in experimental group with ice pack application (before administering IM injection T.T.). It shows that the average pain level is reduced by 1.75 in experimental group with ice pack application.

### C. To compare the pain level of the subjects receiving IM injection T.T. 0.5 ml with and without icepack application:

In the experimental group, 65% of subjects experienced mild pain, 35% experienced moderate pain and 0% of subjects experienced severe pain during IM injection T.T. Whereas in control group, the subjects 35% experienced mild pain, 40% of subjects experienced moderate pain and 25% of the subjects experienced severe pain during the IM injection. In the experimental group the average pain score was 4.15 as against a pain score of 5.9 in the control group. The pain reported by the subjects is of mild to moderate in nature. Inj. T.T. used as prophylaxis in Tetanus as a vaccine in antenatal mothers. Statistical analysis proved that there is statistical difference in the pain perception by the subjects with the two procedures of administering IM injection, that is, with and without the icepack application. Thus, both the techniques of administering IM injection are comparable with each other.

Yet, this data needs to be interpreted cautiously in light of the small sample size. It also needs to be noted that the average pain scores in the group receiving IM injection T.T. without icepack application is high as compared to those who have received with the icepack application.

n=40

Range of Score	Level of pain	Control Group		Experimental Group	
		Frequency	%	Frequency	%
0.00	No Pain	0	0%	0	0%
1 - 4	Mild	7	35%	13	65%
5 - 7	Moderate	8	40%	7	35%
8 - 9	Severe	5	25%	0	0%
10	Worst Pain	0	0%	0	0%
	Total	20	100%	20	100%

The chi-square statistic is 6.8667. The P-Value is 0.032279. The result is significant at  $p < .05$

Group	Mean	Median	Mean Difference	Unpaired 't' test
Control Group	5.9	6	59	1.91669
Experimental group	4.15	4	41.5	1.75544

#### Effectiveness of ice application on pain

Group	Mean	Standard Deviation	Mean Difference	Unpaired 't' test
Control Group	5.9	1.91669	1.75	-3.3819146
Experimental group	4.15	1.75544		

## 4. Recommendations

- 1) The study could have been more accurate if the two techniques "with and without icepack application" was done on the same patient.
- 2) An experimental comparative study could be done with four groups design where icepack application could be done with varying frequencies in each group, to evaluate the effective range of frequency in minimizing pain.

## 5. Implications

The study brings to light that all patients who receive IM injection perceive pain. The selected demographic variables have no relationship to the pain perception by the patients. Though certain past researches have proved that icepack application is effective in reducing pain of IM injection, yet this study proves it. Thus, the nurses in the clinical area can try these indigenous techniques on individual patients while administering IM injection and choose to practice it or not.

Nurse educators can discuss the findings of the study while teaching the topic of IM injection and its pain management. Indigenous therapy should also form a part of the nursing curriculum to be taken by the experts.

The findings of the study could be used as basis of in-service education for nurses so as to make them more competent in self-evaluating the effectiveness of administering IM injection with indigenous techniques on the patients. Further researches can be planned as per the recommendations stated below.

## 6. Conclusion

Conclusion drawn from the study that there was decrease level of pain after icepack application at injection site, there was significant difference between level of pain and socio demographic variables of the study.

## 7. Summary

In the present study I came to know that discomforts caused to patients receiving intramuscular injection, pain management techniques used for intramuscular injection, and therapeutic effects of Icepack application that cause relieved the pain at injection site and antenatal mothers felt comfort.

**Ethical clearance:** Obtained from the institutional ethical committee of People's College of Nursing and Research Centre.

**Source of fund:** Self

**Conflict of interest:** None.

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