

A STUDY TO EVALUATE THE EFFECTIVENESS OF TEPID SPONGING ON REDUCING THE LEVEL OF TEMPERATURE AMONG PRESCHOOL CHILDREN WITH HYPERTHERMIA IN SELECTED HOSPITALS, KERALA

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Abstract

This present study was done to evaluate the effectiveness of tepid sponging on reducing the level of temperature among preschool children with hyperthermia in selected hospitals, Kerala. A quasi experimental pre-test and post test with control group design was used. This study consists of 60 samples out of which 30 belongs to Experimental group and 30 belongs to control group of children with hyperthermia were selected by convenient sampling technique in selected hospitals, Kerala. Descriptive and inferential statistics were used to analyze the data. The obtained 't' test value in post test score for temperature during the tepid sponge, after one hour following was 3.91 at 59(df) significant at ($p < 0.05$) level. Demographic variables such as Age, sex, residential area, initial body temperature, previous practice of tepid sponging at home during hyperthermia, and duration of regain normal body temperature after routine medicine shows no significant association with post test score of body temperature. The finding of the study revealed that tepid sponging procedure was effective in reducing the body temperature, where as Tepid sponging had an additive effect and prevent further rise in body temperature for longer period of time.

Keywords: Tepid Sponging, Temperature, Children, Hyperthermia

INTRODUCTION

Children are crucial to the current future of this country. Parents, fathers, aunts, and uncles are generally committed to providing the children in their families with any possible advantage, and to ensuring that they are safe and have the resources they deserve to achieve need their potential. Yet communities vary greatly in their commitment to the collective health of children and in the resources that they make available to meet the needs of children. It is expressed in the ways societies are approaching their mutual dedication to children, especially their wellbeing.

Throughout recent years, a larger emphasis has been put on issues affecting children and on improving their health. Kids have begun to be remembered not only for who they are now, but also for their potential positions in building communities, improving the economy, and working. Mounting evidence that wellness is setting the foundation for adult wellbeing during infancy not only confirms this outlook but also provides a significant cultural, social, and economic necessity to ensure that all children are as well as they can be. Successful infancy have a higher risk becoming healthy adults.

While only do children under the age of five compose of a wide group, they are often vulnerable to high-risk groups. The risk is related to growth, and survival. The first 5 years n be subject to environmental that contribute to childhood sickness and disease. Two main infectious diseases in

children are infection of the respiratory tract and diarrhea. Skin infections such as scabies, acne, furuncles and impetigo are relatively common in children. For children to, eye infections, particularly conjunctivitis are sometimes observed in children.

A subset of children with fever without cause in developed countries will have a serious bacterial infection (mainly urinary tract infection (UTI), less often pneumonia, sepsis, or meningitis), while the rest will have moderate, self-resolving viral infections. Fever is the most prevalent issues that motivate parents to send their child to hospitals. There can be alarming high temperature. This means that a serious condition is present. The hypothalamus regulates body temperature and as a means to combat the parasite, it raises body temperature.

Preschool is an early education curriculum in which infants in a program run by highly educators incorporate instruction with play. Children are most often enrolled in preschool between the ages of three and five, though they can attend certain classes as early as two. Preschools vary from conventional day care, as they concentrate on learning and growth rather than encouraging parents to work or do other hobbies.

The main objective of fever self-treatment is to relieve the discomfort commonly associated with fevers by lowering temperature to normal body temperature. Nevertheless, even the root cause of the fever must be recognized and treated. Nonprescription antipyretics and non-pharmacological interventions are commonly used to control and treat fever. Acetaminophen (APAP) and nonsteroidal anti-inflammatory medicines, including aspirin, ibuprofen, and naproxen. APAP and ibuprofen are the 2 most commonly prescribed antipyretics. Ibuprofen is only for reduction of fever in patient 6 months and older. Antipyretics in pills, chewable tablets, enteric-coated forms, extended- or sustained-release forms, gel pills, liquid gels, oils, rapid-release gel capsules drops, and tablets are available in a range of formulas for children as single agent or hybrid productions. Acetaminophen is also available for pediatric patient in suppository form. Classically, temperature drop and pain alleviation occur around 30-60 minutes after antipyretics administration.

The treatment for Tepid Sponge needs to be performed by rubbing of warm water on the patient surface. The effect of giving Tepid Sponge is as follow: allowing blood vessel vasodilatation, skin pores, decreasing of blood thickness, improving metabolism, and arousing impulse via skin receptor that sends to the posterior hypothalamus to reduce body temperature. The Tepid Sponge will bring down 1.4°C body temperature in 20min.

Sponging brings in a greater drop in body temperature. Children in the tepid sponging and antipyretic group showed a greater degree of pain than even an antipyretic group, but the pain of most children was only moderate. Alternating tepid sponge use has been found to be the safest cure for fever. Applying tepid sponge application to the skin increases poison absorption and of increased blood supply to surface. Heating the skin surface increases phagocytes capacity to kill the germs and detoxify the blood. Hot bath therapy controls temperature, provides oxygen in the blood for health and has a calming, relaxing effect. Application of hot water causes congested blood flow to distant parts of the body and result in dilation of blood vessels.

OBJECTIVES OF THE STUDY

- To assess the pre and post-test level of body temperature before and after the administration of routine medication among children with hyperthermia in control group.
- To assess the pretest and post-test of body temperature before and after the tepid sponging among children with hyperthermia in experimental group.
- The determine the association between post-test level of body temperature among children with hyperthermia and their selected demographic variables in experimental and control group.

HYPOTHESIS

- H1: There will be a significant difference between the mean pre and post-test level of temperature among children with hyperthermia in experimental and control group.
- H2: There will be significant difference between the mean post-test level of temperature among children with hyperthermia and their selected demographic variables.
- H3: There will be a significant association between mean post-test level of temperature among children with hyperthermia and their selected demographic variables

ASSUMPTIONS

The assumptions of the study were:

- Routine medication and tepid sponging will reduce the fever level among children.
- Increasing the frequency of routine medication will be more effective in reducing hyperthermia than tepid sponging.
- Routine medication is more comfortable for children.

DELIMITATIONS

- The data collection is delimited to a period of 6 weeks.
- A sample size of 60.

RESEARCH DESIGN

A research design is the master plan specifying the methods and procedures for collecting and analyzing the needed information in a research study. (Hungler,2004).

It refers to the overall plan for addressing a research question, Including specification or enhancing the integrity of the study.

Quasi experimental pretest and post-test design with control group was chosen for the study.

Table 1: Research design

Group I	Pre test	Intervention	Post test
Experimental group	o1	X	o2
Control group	o3	-	o4

Key

O1 and O2 - Pretest assessment of level of temperature in experimental group and control group.

X- Tepid sponging for 15 to 20 minutes twice within six hours.

O2 and O4- Post-test assessment of level of temperature in experimental group and control group.

Data Analysis and Interpretation

SECTION - I

Table: 1 Distribution of demographic variables of Experimental group and Control group

		Experimental group n=30		Control group n=30	
SL.NO	Demographic Variables	Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
1	Age				
	a) 3- 5 years	16	53%	13	43%
2	b) 5 years	14	47%	17	57%
	Sex				
2	a) Male	15	50%	17	57%
	b) Female	15	50%	13	43%
3	Types of family				
	a) Nuclear	23	77%	26	87%
4	b) Joint	7	23%	4	13%
	Residential Area				
4	a) Rural	13	43%	12	40%
	b) Urban	17	57%	18	60%
5	Initial body temperature				
	a) 100-10010F	11	37%	12	40%
	b) 102-1030F	10	33%	9	30%
6	c) More than 1030F	9	30%	9	30%
	Previous practice of tepid sponging at home during hyperthermia				
	a) 2 times a day	8	27%	4	13%
6	b) 3 times a day	10	33%	9	30%

	c) Not given	0	0%	0	0%
	Frequency of routine medication				
	d) 2 times a day	1	3%	4	13%
	e) 3 times a day	2	7%	4	13%
7	f) More than 3 times a day	27	90%	22	73%
	Duration to regain normal body temperature after routine medication				
	a) 10-20 minutes	0%	0%	2	7%
	b) 30-40 minutes	16	53%	13	43%
8	c) More than 40 minutes	15	50%	15	50%

Table 1: reveals distribution of demographic variables of the children with Hyperthermia belonging to Experimental group and control group.

- In Experimental group, regarding the age of children, 16 (53%) were in the age group of 3-4 years, 14(47%) were in the age group of 5years. In Control group regarding the age of children, 13 (43%) were in the age group of 3 – 4 years, 17 (57%) were in the age group of 5 years.
- In Experimental group, with regards to sex of children 15(50%) were males, 15 (50%) were females. In Control group with regards to sex of children 17(57%) were males, 13(43%) were females.
- In Experimental group, regarding type of family 23(77%) were in nuclear family,7 (23%) were in joint family. In Control group, regarding type of family i26(87%) were in nuclear family, 4 (13%) were in joint family.
- In Experimental group, regarding residential area 13 (43%) were in rural area,17 (57%) were in urban area. In Control group regarding residential area 12 (40%) were in rural area, 18 (60%) were in urban area.
- In Experimental group, regarding initial body temperature 11(37%) were having body temperature in 100-10010F,10i(33%)were having body temperature in 102-1030F, 9 (30%) were having body temperature in more than 1030F.Control group regarding initial body temperature 12 (40%) were having body temperature having body temperature in 100-10010F,9(30%) were having body temperature in 102-1030F, 9 (30%) were having body temperature in more than 1030F.
- In regarding Experimental group, previous practice of tepid sponging at home during hyperthermia 8(27%) were having 2 times a day, 10 (33%) were having tepid sponging 3 times a day, 0 (0%) were having tepid sponging not given. Control group regarding previous practice of tepid sponging at home during hyperthermia 4 (13%) were having 2

times a day, 9(30%) were having tepid sponging 3 times a day, and 0(0%) were having tepid sponging not given.

- In regarding Experimental group, frequency of routine medication 1(3%) were having 2 times a day, 2 (7%) were having routine medication 3 times a day, 27 (90%) were having routine medication more than 3 times a day. Control group, regarding frequency of routine medication 4 (13%) were having 2 times a day, 4 (13%) were having routine medication administration 3 times a day, 22(73%) were having routine medication more than 3 times a day.
- In regarding Experimental group, duration to regain normal body temperature after routine medication 0(0%) were having 10-20 minutes, 16 (53%) were having duration to regain normal body temperature after routine medication 30-40 minutes, 15 (50%) were having duration to regain normal body temperature after routine medication more than 40 minutes. Control group regarding duration to regain normal body temperature after routine medication 2(7%) were having 10-20 minutes, 13 (43%) were having duration to regain normal body temperature after routine medication 30-40 minutes, 15 (50%) were having duration to regain normal body temperature after routine medication more than 40 minutes.

SECTION – II: Data on effectiveness of tepid sponging on level of temperature among children with hyperthermia

Table 2.1: Mean, standard deviation, Mean difference and ‘t’ value on pretest and post-test level of temperature among children with hyperthermia in Experimental group

Sl.No	Temperature	Mean	SD	Mean difference	Paired ‘t’ test
1	Pre test	101.3	0.88	3	17.5
2	Post test	98.1	0.24		

*significant at 0.05 level

Table 2.1 reveals that among pretest score 101.30F with standard deviation 0.88 was less than the mean post test score 98.10F with standard deviation 0.24. The calculated mean difference was 3 and the obtained ‘t’ value 17.5 was also significant at $p < 0.05$.

Table 2.2: : Mean, standard deviation, Mean difference and ‘t’ value on pretest and post-test level of temperature among children with hyperthermia in control group

Sl.No	Temperature	Mean	SD	Mean difference	Paired ‘t’ test
1	Pre test	101.2	0.81	1.6	19.2
2	Post test	99.6	0.26		

*significant at 0.05 level

Table 2.2 reveals that among pretest score 101.20F with standard deviation 0.81 was less than the mean post test score 99.60F with standard deviation 0.26. The calculated mean difference was 1.6 and the obtained ‘t’ value 19.2 was also significant at $p < 0.05$

Table 2.3: Distribution of Statistical Values of Hyperthermia between the Experimental Group and Control Group

Experimental group and Control group: independent 't' test

Table 2: Mean, standard deviation, Mean difference and 't' value on post test level of temperature with hyperthermia in Experimental group and Control group.

N=60

	Post test	Mean	S.D	Mean difference	Independent 't' Test
1	Experimental Group	98.1	4.8	1.5	3.91
2	Control Group	99.6	3.89		

*significant at 0.05 level

Table 3 shows that among experimental group, the mean post test score was 98.1 with standard deviation 4.8. Among control group, the mean post test score was 99.6 with standard deviation 1.49. The calculated mean difference was 1.5 and the 't' value 3.91 at p = 0.05, level of significance. Table value of t=2.00. Hence, the calculated value was higher when compared with table value ,it highlight that the technique has significant effect on tepid sponging in reducing hyperthermia among preschool children.

SECTION –IV

Table 4: Association of Selected Demographic Variables with post test score of temperature who Received Tepid sponging Among Experimental Group.

N=30

Sl. No	Demographic variables	Above Mean	Below Mean	χ 2
1	Age a) 3-4 years b) 5 years	4 8	12 6	3.2 P=3.84 d(f)=1 Not associated
2	Sex a) Male b) Female	6 7	9 8	0.54, P=3.84 d(f)=1 Not associated
3	Types of family a) Nuclear b) Joint	11 2	12 5	4.37 P=3.84 d(f)=1 Associated
4	Residential area a) Rural b) Urban	6 7	7 10	0.08 P=3.84 d(f)=1 Not associated
5	Initial body temperature a) 100-1010F b) 102-1030F	2 5	9 5	5.01 P=5.99 d(f)=2

	c) More than 1030F	6	3	Not associated
6	Previous practice of tepid sponging at home during hyperthermia a) 2 times a day b) 3 times a day c) Not given	6 7 0	4 13 0	2.9 P=5.99 d(f)=2 Not associated
7	Frequency of routine medication a) 2 times a day b) 3 times a day c) More than 3 times a day	0 12 1	0 15 2	6.02 P=5.99 d(f)=2 Associated
8	Duration of regain normal body temperature after routine medicine a) 10-20 minutes b) 30-40 minutes c) More than 40 minutes	0 5 8	0 11 6	2.03 P=5.99 d(f)=2 Not associated

Table 3: envisages the substantive summary of χ^2 analysis which was used to bring out the relationship between the levels of temperature among children with their selected demographic variables in experimental group.

Table reveals that a χ^2 value for age 3.2,sex 0.54,residential area 0.08,initial body temperature 5.01,previous practice of tepid sponging at home during hyperthermia 2.9, and duration of regain normal body temperature after routine medication 2.03was no significant association between the reduction of tepid sponging in children with hyperthermia. There is was significant association between type of family 4.37 and frequency of routine medication 6.02.

The pre-test mean value of body temperature for both experimental group and control group 101.3 and 101.2 respectively.

- The post test mean value of body temperature for both experimental group and control group 98.1 and 99.6 respectively.
- The obtained 't' value on pretest and post test level of temperature among children with hyperthermia in experimental group was 17.5.
- The obtained 't' value on pretest and post-test level of temperature among children with hyperthermia in control group was 19.23.
- The obtained independent 't' value of post test scores for the comparison of body temperature of control group and experimental group was 3.91.

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