Effect of Tepid Sponge on changes in body temperature in children under five who have fever in Dr. Achmad Mochtar Bukittinggi Hospital∗

Hendrawati*, Mariza Elvira

Nabila Nursing Academy, Padang Panjang, Indonesia

Received 4 October 2018; accepted 14 November 2018
Available online 31 January 2019

KEYWORDS
Body temperature; Children under five; Tepid Sponge

Abstract
Objective: The purpose of the study was to determine the effect of Tepid Sponge on changes in body temperature in children aged under five who had a fever in Dr. Achmad Mochtar Bukittinggi Hospital.
Method: This research is Quasi Experiment with one group pretest-posttest research design. Done at Dr. Achmad Mochtar Bukittinggi Hospital in April 2018. Respondents of children under five who suffered from fever were 12 people. Samples in Non-probability Sampling with Systematic Sampling. The kind of systematic sampling is type of sample based on the order of members of the population who have been given an even number starting from number 2. The statistical test used is paired sample T-test.
Results: Before being given Tepid Sponge all children under five experience high temperatures (100%) of 12 respondents, after being given Tepid Sponge one time gift, the temperature of all respondents becomes normal (100%). Statistical test results showed a significant effect of giving Tepid Sponge to changes in body temperature with \( p = 0.000 \) (≤0.05).
Conclusion: It can be concluded that there was effect of Tepid Sponge on changes in body temperature. Health workers are expected to provide Tepid Sponge for children under five who have increased body temperature.
© 2019 Elsevier España, S.L.U. All rights reserved.

Introduction
Fever is a condition of body temperature above normal as a result of increase in temperature regulator in the hypothalamus. Most of fever child, fever was a result of the change of heat center (thermoregulation) at hypothalamus. The diseases followed by fever could attack the system increasing the development of specific and nonspecific
The statistical test used is paired sample T-test. Before being given Tepid Sponge all children under five experience high temperatures (100%) of 12 respondents, after being given Tepid Sponge one time gift, the temperature of all respondents becomes normal (100%).

**Result**

Statistical test results showed a significant effect of giving Tepid Sponge to changes in body temperature with \( p = 0.000 \) (\( \leq 0.05 \)).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>SE</th>
<th>p-value</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before Tepid Sponge</td>
<td>38.31</td>
<td>0.436</td>
<td>0.12</td>
<td>0.000</td>
<td>12</td>
</tr>
<tr>
<td>After Tepid Sponge</td>
<td>37.17</td>
<td>0.46</td>
<td>0.13</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Discussion**

The research result using paired sample \( T \)-test showed that there was 38.31\( ^{\circ} \)C of body temperature with deviation standard of 0.436 before giving Tepid Sponge. After giving Tepid Sponge, there was a decrease of body temperature namely 37.17\( ^{\circ} \)C with deviation standard 0.46 and \( p \)-value 0.000 (\( p \)-value < 0.05). The result showed that there was significant difference of body temperature before and after giving Tepid Sponge toward the decrease of body temperature (\( p \)-value = 0.000). Ho was rejected and Ha was accepted, it means that there was significant effect of giving Tepid Sponge toward the change of body temperature.

The research result was also in accordance with research conducted entitled "The effect of Tepid Sponge toward the preschool child's body temperature who got fever at RSUD Sultan Syarif Muhammad Al Kardie Pontianak"\(^{10}\) with 16 respondents, using paired sample \( T \)-test and bivariate analysis result. The research result showed that there was the change of body temperature before and after intervention. The average body temperature before intervention was 38.288, while after intervention was 37.763.

The research conducted by Tito, 2014 entitled "The comparison of tepid sponging and plaster compress in decreasing body temperature the child below 5 year who got fever at Puskesmas Salaman 1 Kabupaten Magelang, using independent \( T \)-test. The research with 15 children under 5 year who got fever showed that there was the average body temperature before giving plaster compress was 38.06\( ^{\circ} \)C, while after giving plaster compress was 37.46\( ^{\circ} \)C, with average body temperature decrease was 0.6\( ^{\circ} \)C. The calculating using independent \( T \)-test, with \( p \)-value 0.002 and \( \alpha \) (0.05) showed that there was a difference of body temperature of children under who got fever after giving tepid sponging and plaster compress. The average decrease of body temperature using tepid sponging was 1.09\( ^{\circ} \)C while plaster compress was 0.06\( ^{\circ} \)C. It was found that using tepid sponging was more effective in decreasing body temperature, because it gave large effects on human skin compared to plaster compress which focused on one point.\(^{11}\)

Based on above theories and research result, the researcher analyzed that Tepid Sponge could influence the body temperature of children under five. The effects of giving Tepid Sponge were making vasodilatation of blood vessels, pores, of skin, reducing of blood viscosity,

**Method**

This research is Quasi Experiment with one group pretest–posttest research design. Done at Dr. Achmad Mochtar Bukittinggi Hospital in April 2018. Respondents of children under five who suffered from fever were 12 people. Samples in Non-probability Sampling with Systematic Sampling. The kind of systematic sampling is type of sample based on the order of members of the population who have been given an even number starting from number 2. This Tepid Sponge has been done by wiping the entire body of the client with warm water.
improving metabolism, and stimulating impulse through skin receptor sent to hypothalamus posterior to decrease the body temperature through evaporation technique namely, to facilitate the displacement of body temperature. Each gram of evaporated water cause the loss of body temperature about 0.58 kcal units. In condition of individual without sweat, evaporation mechanism exists about 450–600 ml/day. In this condition, one of the ways of releasing the temperature was through evaporation.

Conclusions

It can be concluded that there was effect of Tepid Sponge on changes in body temperature. Health workers are expected to provide Tepid Sponge for children under five who have increased body temperature.

Acknowledgements

Thanks to Dr. Achmad Mochtar Bukittinggi Hospital which facilities the research and to respondents and all parties who supported this research.

References