



Original Research

Tepid sponge and sponge bath to change body temperature children with dengue fever

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Abstract

Dengue Haemorrhagic Fever (DHF) is a viral infection transmitted by mosquitoes causing potentially deadly complications. The typical sign of this case is getting high fever until 3-7 days then it drops quickly. To make a lower body temperature, compress the body with warm water by using tepid sponge and sponge bath techniques. The objective of this study to determine the effect of compresses with tepid sponge and sponge bath techniques on changes in children's body temperature with DHF. This study used quantitative research with quasi-experiment design two group pre-test post-test design approach. The population of 30 children with fever, with purposive sampling technique using the Lemeshow formula. The analysis used was paired T-test, Wilcoxon, and Mann Whitney at a significance level of 0.05. Wilcoxon statistical test results show there is a tepid sponge effect on children body temperature with DHF with a p-value of 0.001. The dependent t-test shows there is an influence of sponge bath in children body temperature with DHF p-value of 0,000. The Mann witney test shows that Sponge bath is more effective than a tepid sponge in reducing fever with a p-value of 0,000. The conclusion of this study can be used as a guide for treating children with fever with the issuance of a standard SPO. Application of this method needs to involve parents to maintain the comfort of children, so it needs to make socialization to parents.

INTRODUCTION

Fever was one of the body's defences against natural infections bacteria and viruses that cannot live at a higher temperature.¹ The incidence of Dengue Fever was 433 (84,24 %) in 2017. Case Fatality Rate (CFR) in Indonesia was 0,72% and Central Java Province was 0,54%.² Dengue fever disease is still a problem in the Province of Central Java, 35 cities have been proven to have contracted Dengue Fever.

The Incidence Rate (IR) of Dengue Fever in the Province of Central Java in 2017 was 21,68 per 100,000 population. Semarang regency obtained data 23,65% of the incidence of Dengue Fever in Central Java Province.³ The under-five mortality rate in the last 3 years in Semarang Regency shows a decrease from year to year. With infant mortality, this is still caused by infectious diseases. The mortality rate due to dengue fever in Semarang Regency is 0.8% of the death rate in Central Java Province.²

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Non-pharmacological treatment that can be done independently by the room nurse to reduce the body temperature of children with fever is by hydrotherapy. Hydrotherapy is a water use therapy to cure & relieve fever.⁴ One of the usual hydrotherapy nurses do is compress. Compresses themselves have various types, one of which is warm water compresses, warm water compressors with tepid sponge technique, warm water compresses with sponge bath techniques.⁵

The results of other study showed that patients with toddler fever given tepid sponge experienced a decrease in temperature.⁶ Whereas the study of Lim, et al (2018) did not make a significant difference between pediatric patients who were given warm massages with antipyretics.⁷

Data obtained for 6 months from August 2018 to January 2019, dengue fever patients treated at Ken Saras Hospital there were 121 children. In dengue FEVER children always found problems with increasing body temperature, handling for temperatures above 37.5 Celsius is by compressing warm water on the folds of the armpits. The results found that there were 80 children (66.1%) out of 121 children (100%), had warm water compresses done and no complaints. However, there were 41 children (33.9%) out of 121 children (100%) who felt cold and shivering because the compress was taken too long..

METHODS

This research is a quantitative study with a quasi-experiment design with a two-group pretest-posttest design approach to determine the effect of tepid sponge and sponge bath treatment on changes in body temperature of children with fever. The sampling technique used is purposive sampling. The technique of dividing sample groups is by drawing with sequence numbers. Patients undergoing hospitalization in October-December 2019

who have been diagnosed with Dengue Fever. Starting with the first patient who came in labelled number one, the odd sequence was group 1 tepid sponge respondent. Then the second respondent with an even number becomes the sponge bath group 2 respondent until all respondents are met. With a total sample of 15 children in each group. The instruments used in this study were thermometers and compresses. The analysis used was paired T Test, Wilcoxon and Mann Whitney

RESULTS

The results showed that the child's body temperature before the tepid sponge technique had the lowest temperature of 37.8 Celsius and the highest temperature of 39 degrees Celsius. Meanwhile, the child's body temperature after the tepid sponge technique had the lowest temperature of 37.5 degrees Celsius and the highest temperature of 38.7 degrees Celsius. The results of the analysis have shown that there is a significant difference between the child's body temperature before and after the "tepid sponge technique" ($p < 0.05$). It can be concluded that the "tepid sponge technique" is able to reduce the child's body temperature by 0.2 degrees Celsius.

The results showed that the child's body temperature before the sponge bath technique had the lowest temperature of 37.9 Celsius and the highest temperature of 40 degrees Celsius. Meanwhile, the child's body temperature after the sponge bath technique had the lowest temperature of 37 degrees Celsius and the highest temperature of 39.5 degrees Celsius. The results of the analysis showed that there was a significant difference between the child's body temperature before and after the sponge bath technique ($p < 0.05$). It can be concluded that the "sponge bath technique" is able to reduce the child's body temperature by 0.09 degrees Celsius.

Therapy effectiveness analysis has been carried out by analyzing the difference

between the reduction in body temperature of children in the two interventions that have been carried out. The analysis results have shown that the sponge bath technique is more effective at lowering the child's body temperature than the tepid sponge technique.

Child's body temperature before and after the compress is presented in the following table 1.

Table 1
Body temperature before and after treatment
(n=15)

Indicators	Tepid sponge technique	Sponge bath technique	p
Body temperature before treatment	38 (±0,47)	38,9 (±0,65)	0,0001***
Body temperature after treatment	37,8 (±0,43)	38,08 (±0,71)	
p	0,001*	0,0001**	

* Paired t-test

** Wilcoxon test

*** Mann-Whitney test

DISCUSSION

The results of the research that have been done show that the results of the Tepid Sponge treatment obtained a median value before the child's body temperature test of 38.0 C fell to 37.80 C. The statistical test results showed a p-value of 0.001 so that it can be concluded that Tepid Sponge affects reducing the body temperature of children with a fever at Ken Saras Hospital. The tepid sponge is more effective in lowering the body temperature of children with fever compared to warm compresses because it will accelerate vasodilation of peripheral blood vessels throughout the body so that heat evaporation from the surrounding skin environment will be faster than the results given by warm compresses which only rely on hypothalamic stimulation.⁸

The results of the research that have been done show that the results of the Sponge Bath treatment obtained an average value before the child's body temperature test of 38.9° C dropped to 38.08° C. The statistical test results showed a p-value of 0,000 so it can be concluded that Sponge Bath affects reducing the child's body temperature with fever at Ken Saras Hospital. This is also following Hockenberry's theory that the benefits of a sponge bath can provide comfort and lower body temperature in handling cases of clients who have a fever. The skin is an effective heat radiator for balancing body temperature, so rinsing the entire body/skin causes the skin to release heat by sweating, and by sweating the body temperature initially rises to a decrease even to normal temperatures.⁹

The results of the study showed that the mean rank difference in the decrease in body temperature of children with fever treated by Tepid Sponge was 8.47 while in the Sponge Bath group it was 22.5. Statistical test results show that the p-value is 0,000 so that it can be concluded that Sponge Bath is more effective in reducing the body temperature of children with a fever at Ken Saras Hospital.

Sponge Bath is more effective in lowering a child's body temperature. Sponge Bath technique by wiping the entire body of a child with a warm washcloth is effective hydrotherapy by means of heat evaporation in the body. Besides minimizing the body's contact with cold water.¹⁰

Observation results in this study found that sponge baths are more effective than warm water compresses because on average sponge baths are given faster sweating because the entire surface of the body and skin is rinsed using warm water.

CONCLUSION

There is an effect of temperature changes in children with dengue fever given compresses of tepid sponge and sponge

bath techniques with p values of 0.001 and 0,000. A sponge bath is more effective than a tepid sponge in reducing body temperature in children with DHF p-value of 0,000. With a mean rank of Trepid Sponge treatment results of 8.47 while in the Sponge Bath group of 22.53.

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CONFLICTS OF INTEREST

Neither of the authors has any conflicts of interest that would bias the findings presented here.

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