ISSN XXXX-XXXX (Online) | XXXX-XXXX (Print) | Vol. 2, No.1, November (2023), pp.24-28

Published by: IARN Institute

International Journal of Nursing and Midwifery Research

Journal homepage: https://journals.iarn.or.id/index.php/ners/index

The Effectivity Of Water Tepid Sponge Therapy In Overcoming Nursing Problem Of Hyperthermia In Pediatric With Prolong Fever: A Case Study

Nadilla Cynthia Nur Fikriyah[1], Ema Arum Rukmasari[2], Windy Rakhmawati[3]

[1]Professional Nursing Program, Faculty of Nursing, Universitas Padjadjaran, Bandung 40132, Indonesia

[2,3]Department of Pediatric, Faculty of Nursing, Universitas Padjadjaran, Bandung 40132, Indonesia

Article Info

Article history:

Received Sep 20, 2023
Revised Sep 27, 2023
Accepted Nov 30, 2023

Keywords:

Hyperthermia;
Nursing Care;
Prolong fever;
Water Tepid Sponge.

ABSTRACT)

One of the most common symptoms that bring patients to health services is fever. Prolong fever is a condition where the child's body is at a body temperature of more than 380C which occurs for approximately 8 days. Improper and slow handling of prolong fever will effect febrile seizures, dehydration, fainting, persistent high fever which causes brain damage. This study aimed to determine the effectiveness of the water tepid sponge intervention in overcoming nursing problem of hyperthermia in pediatric with prolong fever. The research method used is a case study with a nursing process approach starting from assessment to evaluation in children who have prolong fever with hyperthermia nursing problems. One of the interventions and implementations that are carried out based on the results of evidence based practice is water tepid sponge therapy. After 4 days of intervention, the nursing problems in this case study were only partially resolved. Therefore need for further monitoring related to hyperthermia management which includes monitoring body temperature and water tepid sponge therapy.

Corresponding Author:

Nadilla Cynthia Nur Fikriyah,
Professional Nursing Program,
Universitas Padjadjaran,
Jl. Raya Ir. Soekarno KM. 21 Kec. Jatinangor, Kab. Sumedang, Jawa Barat 45363, Indonesia.
Email: nadilla17001@mail.unpad.ac.id

1. INTRODUCTION

One of the most common symptoms in patients when they come to the service or health facility is fever. Prolonged fever is one of the most common cases in pediatric patients. Prolonged fever, or fever of unknown origin (FUO), is a condition where the child's body is at a temperature of more than 38°C which occurs for approximately 8 days (Gustawan & Tarini, 2014; Karyanti, 2019).

According to the World Health Organization (WHO), the number of existing cases of fever around the world has now reached 16 to 33 million, with approximately 500 to 600 thousand deaths each year. Health facility visit data for pediatrics in Brazil with child complaints of having a fever has reached a range of 19%–30% (Wardiyah et al., 2016). Indonesia, a developing country, had a high case of fever due to infectious viruses with a body temperature above 38°C (Rahmawati & Purwanto, 2020).

Several etiologies cause the child to have a prolonged fever. According to Karyanti (2019),there are five causes; the most common are infectious diseases, malignancies, collagen-vascular disease, idiopathic disorders, and immunological disorders. Besides that, research that was carried out at Fatmawati General Hospital in 2008–2012 shows that disease infection is the most common cause of prolonged fever in children (97%)(Latupeirissa, 2012).

Many impacts arise when a child has a prolonged fever. According to Agustina et al. (2021), prolonged fever can be considered a hazardous condition in children because it can cause dehydration, fainting, febrile seizures, and even cause a persistently high fever and brain damage. Besides, a child who experiences prolonged fever will experience growth and development that are disturbed when the action taken to overcome it is imprecise and slow (Wardiyah et al., 2016).

Rapid and precise treatment of prolonged fever is critical in minimizing the consequences and ensuring child survival.Treatment and management of fever in children are different compared to adults(Wardiyah et al., 2016).

Treatment of prolonged fever in children can be given by way of pharmacology, non-pharmacology, or a combination of both. A pharmacological action is the act of giving an analgesic or antipyretic drug. Whereas non-pharmacological action is additional action in reducing heat after the administration of analgesic or antipyretic drugs, such as wearing thin clothes, giving a lot of fluids orally, and giving compresses. Combining handling between the two ways corresponds to the very procedure necessary to prevent the occurrence of complications such as dehydration, febrile seizures , and others that can harm children(Agustina et al., 2021).

The multidisciplinary approach is very important in increasing the health status of prolonged fever patients. Besides that, it is also very important to communicate in the process of fever monitoring and collaboration when further examination is required (Brown & Finnigan, 2022).

The role of the nurse in the care process of children with prolonged fever is focused on ensuring the restoration of the child's health; the other is to make sure the child's body temperature returns to normal. In addition, nurses also have a fundamental role in child care; with prolonged fever, the nurse is responsible for ensuring that maintenance will do well and contribute to the positive developments in children (Elisanov, 2020). Assistance should also be provided to parents and members of other children's families who are experiencing high levels of stress and anxiety as a result of their children being hospitalized.Therefore, the nursing process provided must meet the physiological needs of the child and the family's psychology and processes Nursing must be provided with as much quality as possible.

2. RESEARCH METHOD

This research uses the method of case studies with a caring approach to nursing that includes an assessment for nursing evaluation. The study subject is An. N, a 6-year-old who experiences prolonged fever with hyperthermia nursing problems. Studies on the case were carried out for four days in June 2022 in the pediatric inpatient room at Bandung Kiwari Hospital. The collection of data is done by observation and interview.

In addition, a search for evidence was carried out based on practice regarding intervention in children with hyperthermia. The keyword used in the literature review search are body temperature, pediatric, and water tepid sponge. As for the inclusion criteria, namely the article discussing the intervention in children with hyperthermia, year of publication articles from the last ten years (2012–2022), full-text articles, and using an RCT design or quasi-experimental, the criteria for the exclusions were non-RCT articles or quasi-experimental.

3. RESULTS AND DISCUSSIONS

Case Presentations

Child N, aged 6 years, was treated in the room for hospitalization of children with a prolonged diagnosis of fever. After being examined, Mrs. An. N. said her child's body temperature goes up and down without being accompanied by seizures or a decreased appetite. This matter occurred during the nine days before entering the house Sick. Composer's level of consciousness, general state of weakness, glazed eyes, mucous membranes dry but not chapped, acral warm, and slightly dry skin Signs Blood pressure was 101/67 mmHg, pulse rate was 92 beats per minute, respiration rate was 22 beats per minute, body temperature was 390 C, and SpO2 was 98%.During treatment, An. N. was at

risk of moderate to severe malnutrition with a body weight of 23 kg and a height of 127 cm. An. N. only eats the hospital food, sometimes three or four spoons at a time. Rest and sleep status An. N Enough.

Laboratory tests show hemoglobin 14 g/dL (normal); leukocytes 3,720/mm3 (low); erythrocytes 5.25 million/L (tall); hematocrit 40.4% (normal); platelets 179,000/mm3 (normal); MCV 77fL (low); neutrophil stems 0% (low); lymphocytes 47% (high). An. N got therapy with paracetamol syrup 3x1 PO and cefotaxime 3x1 g IV.

Based on the results of the literature review, nurses perform management interventions for hyperthermia. One of those actions is using a tepid water sponge. Results Check your body temperature after it is done These interventions are as follows:

Table 1. After body temperature evaluation results, intervention is carried out.

Date	Temperature
June 19, 2022	39°C
June 20, 2022	38,5°C
June 21, 2022	37,8°C
June 22, 2022	37°C

Discussion

In this case study, the determination of the nursing diagnosis is guided by the Standards of Indonesian Nursing Diagnosis (IDHS) (PPNI, 2016). In theory, according to Huda and Kusuma (2016), children with prolonged fever can experience nursing problems related to hyperthermia, hypovolemia, and the risk of nutritional deficits. The main nursing diagnosis in this case is hyperthermia.

The interventions provided are guided by Nursing Intervention Standards Indonesia (SIKI) (PPNI, 2018). Intervention in the form of hyperthermia management consists of several nursing actions, such as identifying causes of hyperthermia, monitoring body temperature, giving bed rest advice, and collaboratively administering electrolyte fluids intravenously as well as administering analgesics or antipyretics by mouth. The intervention is based on evidence-based practices in handling hyperthermia, one of which is with a water-tepid sponge (WTS).

In hyperthermic patients, treatment for fever is usually either pharmacological or non-pharmacological, and both can be carried out Puspitasari et al. (2022). Pharmacological action, i.e., with administration of antipyretic drugs, is one of them, while non-pharmacological action is another. WTS is a supporting intervention while antipyretic administration is given with the hope that body temperature can decrease gradually and periodically quickly Puspitasari et al. (2022). Administration of antipyretics aims to control the thermoregulation system on the hypothalamus as well as WTS. However, in WTS, hypothalamic control is performed with stimulation from the external, that is, with a wipe off using warm water (Hendrawati & Elvira, 2019; Pangesti & Mukti, 2020; Puspitasari, 2022).

Research conducted by Hamid (2011) indicates that the administration of analgesics or antipyretics in combination with giving WTS has an advantage in accelerating the decrease in the child's body temperature who has a fever in one hour compared to that child given only analgesics or antipyretics alone.

There are many uses of WTS performed on children who experience hyperthermia (Puspitasari et al., 2022). WTS is an act of improved temperature control through evaporation and conduction that is usually carried out on a child or person who has a high fever (Hendrawati & Elvira, 2019). The objective of this action is to lower the client's body temperature (Hendrawati & Elvira, 2019).

Providing WTS intervention can be done by wiping the body, especially in those parts of the body folds, with warm water at 37°C (Hendrawati & Elvira, 2019). Based on the results of the literature review, this action is performed for approximately 20–30 minutes. But by doing only 20–30 minutes, the body temperature does not return to normal; it must be done automatically, gradually, and repeatedly so that the body temperature becomes normal at 100% (Puspitasari et al., 2022).

There are many benefits from giving WTS. The benefits of giving WTS include: helping lower body temperature, reducing the feeling of pain, providing a sense of comfort, expediting blood circulation in the body, as well as reducing and preventing contractions in the muscles. (Isneini, 2015; Haryani et al., 2018).

Pathophysiologically, the administration of *tepid sponge* has an effect on progressing vasodilation of blood vessels and skin pores, lowering blood viscosity, increasing metabolism, and stimulating impulses through skin receptors sent to the hypothalamus posterior to lower body temperature (Hendrawati & Elvira, 2019; Lestari et al., 2019; Puspitasari, 2022). Additionally, in principle, giving WTS has an effect on lowering body temperature through evaporation and can help accelerate blood circulation so that the blood in the body will flow from the internal organs to the surface of the body, carrying heat (Wardiyah et al., 2016).

There are two processes in the transfer of heat in WTS: conduction and evaporation. The process of conduction occurs when he applies pressure to the wound using a washcloth. While process evaporation occurs when the child's body is wiped, when sweeping is done, process evaporation of heat into sweat occurs (Faradilla & Abdullah, 2020; Haryani et al., 2018). Besides Therefore, the WTS technique has an effect on a decrease in body temperature due to block compressions immediately carried out at several points on great vessels, causing increased circulation and capillary pressure. The pressure of O_2 and CO_2 in the blood will increase, and the pH in the blood will decrease (Wardiyah et al., 2016; Yunianti Suntari et al., 2019).

Several studies show that giving WTS is effective and quite good at lowering the body temperature. According to Yunianti Suntari et al. (2019), the intervention group experienced a decrease in the average temperature after action was taken. The average body temperature before being given the WTS compress action was 38.1°C, and the average body temperature after 30 minutes of the action was 37.6°C.

Other supporting research is Maling (2012). The research results stated that WTS is very effectively carried out on a child 1.40 °C.with a fever. The research indicates a decrease in body temperature in 36 children aged one to ten years, with an average value of 1.40C. It is supported by other studies that mention that the average decrease in body temperature is 0.8°C (Puspitasari et al., 2022; Wardiyah et al., 2016).

In this case study, an evaluation was carried out after 3 days of implementation. Based on the results of the temperature37.8°C. 38.5°C. Measurement, there is a decrease in temperature from day 2 to day 4 (see table 1). On the second day, the client still looks weak, and the patient's acral still feels warm with a body temperature of 38.5°C. Then on the third day, the client started to look fresh, and his body temperature improved to a value of 37.8°C. Whereas the last day, the client started to improve with a body temperature of 37°C.

The difference in response on the second, third, and fourth days can be assessed by a decrease in body temperature. But the temperature of the client's body on the last day has not been able to be said to be within the normal range. It can be concluded that the problem of hyperthermia in this case study was not fully resolved during the 3 days of treatment. Therefore, based on that evaluation obtained, it is necessary to continue the intervention management of hyperthermia, i.e., giving electrolyte fluids intravenously and orally advising bed rest, continued administration of analgesic drugs or antipyretics, and temperature evaluation by the body.

4. CONCLUSION

Hyperthermia is a nursing issue that is frequently found in children with prolonged fever. The intervention can be given in the form of a tepid sponge. This treatment is very helpful in reducing the child's body temperature. Identifying the causes of hyperthermia, monitoring body temperature, bed rest advice, and collaborative administration of electrolyte fluids as well as analgesic or antipyretic drug are all important interventions in lowering a child's body temperature. Problem evaluation for hyperthermia in this case study has not yet been fully resolved, meaning the problem in this case study

is only partially resolved. Nurses are expected to apply hyperthermia management interventions in patients with *prolonged fever.*

REFERENCES

Agustina, N., Nurhaeni, N., & Wanda, D. (2021). Kompres dengan Teknik Warm Water Sponge pada Pasien Anak yang Mengalami Demam. The Indonesian Journal of Infectious Diseases, 7(2), 20. https://doi.org/10.32667/ijid.v7i2.119

Brown, I., & Finnigan, N. A. (2022). Fever Of Unknown Origin. StatPearls Publishing. Retrivied from: https://www.ncbi.nlm.nih.gov/books/N BK532265/

Dewi, A. K. (2016). Perbeedaan Penurunan Suhu Tubuh Antara Pemberian Kompres Hangat Dengan Tepid Sponge Bath Pada Anak Demam. Jurnal Keperawatan Muhammadiyah, 1(1), 63–71.

Elisanov, V. (2020). Menurunkan Hipertermia Pada Anak Dengan Metode Water Tepid Sponge Di Ruang Anak Lantai Dasar Menurunkan Hipertermia Pada Anak Dengan Metode Water Tepid Sponge Di Ruang Anak Lantai Dasar. Politeknik Kesehatan Semarang.

Faradilla, F., & Abdullah, R. (2020). The Effectiveness Of The Water Tepid Sponge To Decrease The Body Temperature In Children With Febrile Seizure. Jurnal Kesehatan Pasak Bumi Kalimantan, 3(2), 1. Https://Doi.Org/10.30872/J.Kes.Pasmi. Kal.V3i2.4935

Gustawan, I., & Tarini, A. (2014). Pola Kuman dan Sensitifitas Antibiotik Kasus Demam Berkepanjangan Pada Pasien Anak Yang Dirawat Di Bagian Anak RSUP Sanglah Denpasar. Medicina, 45(1), 25–30.

Hamid, A. M. (2011). Keefektifan Kompres Tepid Sponge Yang Dilakukan Ibu Dalam Menurunkan Demam Pada Anak Di Puskesmas Mubulsari Kabupaten Jember. Tesis Program Studi Magister Kedokteran Uns.

Haryani, S., Adimayanti, E., & Astuti, A. P. (2018). Pengaruh Tepid Sponge Terhadap Penurunan Suhu Tubuh Pada Anak Pra Sekolah Yang Mengalami Demam Di RSUD Ungaran. Jurnal Keperawatan Dan Kesehatan Masyarakat Cendekia Utama, 7(Maret), 44–53.

Hendrawati, & Elvira, M. (2019). Effect Of Tepid Sponge On Changes In Body Temperature In Children Under Five Who Have Fever In Dr. Achmad Mochtar Bukittinggi Hospital. Enfermeria Clinica, 29, 91–93. Https://Doi.Org/10.1016/J.Enfcli.2018. 11.029

Huda, A., & Kusuma, H. (2016). Asuhan Keperawatan Praktis (Cetakan 1). Mediaction.

Isneini, M. (2015). Efektifitas Penurunan Suhu Tubuh Antara Kompres Hangat Dan Water Tepid Sponge Pada Pasien Anak Usia 6 Bulan - 3 Tahun Dengan Demam di Puskesmas Kartasura Sukuharjo Naskah. 1–14.

Latupeirissa, D. (2012). Demam Berkepanjangan Pada Anak Di RSUP Fatmawati Tahun 2008-2010. Sari Pediatri, 14(4), 241. Https://Doi.Org/10.14238/Sp14.4.2012. 241-5

Lestari, A. B. D., Sarwono, B., & Isworo, A. (2019). Efektivitas Water Tepid Sponge Suhu 37°C Dan Kompres Hangat Suhu 37°C Terhadap Penurunan Suhu Pada Anak Dengan Hipertermia. Jurnal Keperawatan Mersi Vol Viii, Viii(2), 50– 55.

Maling, B. (2012). Pengaruh Kompres Tepid Sponge Hangat Terhadap Penurunan Suhu Tubuh Pada Anak Umur 1-10 Tahun Dengan Hipertermia (Studi Kasus Di RSUD Tugurejo Semarang). Karya Ilmiah, S.1 Keperawatan, Sekolah Tinggi Ilmu Kesehatan Telogorejo.

Pangesti, N. A., & Mukti, B. K. A. (2020). Studi Literatur : Perbandingan Penerapan Teknik Tepid Water Sponge Dan Kompres Hangat Untuk Menurunkan Suhu Tubuh Pada Anak Yang Mengalami Kejang Demam. Coping: Community Of Publishing In Nursing, 8(3), 297. Https://Doi.Org/10.24843/Coping.2020. V08.I03.P11

Ppni. (2016). Standar Diagnosis Keperawatan Indonesia: Definisi Dan Indikator Diagnostik. In 1st Ed. Dpp Ppni.

Ppni. (2018). Standar Intervensi Keperawtan Indonesia: Definisi Dan Tindakan Keperawatan. In 1st Ed. Dpp Ppni.

Puspitasari, R. A. H. (2022). Indonesian Journal Of Community The Effect Of Tepid Sponge On Changes In Body Temperatur In Children : A Literature Review. Indonesian Journal Of Community Health Nursing, 7(1), 9–16. Https://Doi.Org/10.20473/Ijchn.V7i1.3 7886

Rahmawati, I., & Purwanto, D. (2020). Efektifitas Perbedaan Kompres Hangat Dan Dingin Terhadap Perubahan Suhu Tubuh Pada Anak Di RSUD Dr. M. Yunus Bengkulu Ida. Jurnal Ilmiah Ilmu Kesehatan, 8(2), 246–255.

Wardiyah, A., Setiawati, S., & Setiawan, D. (2016). Perbandingan Efektifitas Pemberian Kompres Hangat Dan Tepidsponge Terhadap Penurunan Suhu Tubuh Anak Yang Mengalamidemam RSUD Dr. H. Abdul Moeloek Provinsi Lampung. Jurnal Ilmu Keperawatan (Journal Of Nursing Science), 4(1), 44– 56. Https://Doi.Org/10.21776/Ub.Jik.2016. 004.01.5

Yunianti Suntari, N. C., Susy Natha Astini, P., & Made Desi Sugiani, N. (2019). Pengaturan Suhu Tubuh Dengan Metode Tepid Water Sponge Dan Kompres Hangat Pada Balita Demam. Jurnal Kesehatan, 10(1), 10–16