

Section: General Nursing

Warm compresses to reduce fever in children with simple febrile seizures

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Abstract

Febrile seizures are the most common neurological disorder in children, affecting approximately 1 in 25 children. This high prevalence occurs because children under the age of five have underdeveloped immune systems, making them highly susceptible to various febrile illnesses. In clinical wards, parents frequently request immediate fever-reducing medication when their child experiences hyperthermia. Standard nursing protocols typically involve measuring the patient's body temperature, administering antipyretics, and implementing non-pharmacological interventions. These supportive measures include providing plenty of fluids, placing the child in a room with a normal ambient temperature, dressing them in lightweight clothing, utilizing massage or herbal alternatives like aloe vera, and applying compresses. The objective of this study is to determine the specific efficacy of warm compresses in reducing body temperature among paediatric patients experiencing simple febrile seizures. The study focuses on paediatric patients diagnosed with simple febrile seizures who present with a body temperature above 37.5°C. To manage and reduce body temperature, warm compresses are applied to the forehead, axilla (underarms), and inguinal (groin) regions. Each application lasts for 30 minutes and is repeated three times to evaluate its therapeutic effect.

Keywords: Body temperature reduction, febrile seizures, hyperthermia, paediatric nursing, warm compresses

Introduction

Febrile seizures in children are generally associated with the vulnerability of the child's immune system, which is not yet fully developed (Tiwari et al., 2022). Children, especially those under the age of 5, have an immune system that is still developing (Hill et al., 2020). As a result, they are more susceptible to various diseases, including infections that can cause fever. When a child has a fever, especially one caused by an infection such as the flu or a respiratory tract infection, rapid changes in body temperature can trigger seizures (Berg, 1993). This is called a febrile seizure, and it typically occurs in children who have not yet reached school age. Other factors that may influence the occurrence of febrile seizures include genetic factors, a family history of febrile seizures, and the child's body temperature reaching a certain level during a fever (Ram & Newton, 2015; Abbari et al., 2024). A warm compress is one procedure to enhance control of body heat loss through evaporation and conduction, performed on clients with high fever (Souza et al., 2022). The heat transfer process through conduction begins with compressing the child with a washcloth, and the evaporation process occurs due to the wiping action on the body, resulting in the evaporation of heat into sweat (Freiwald et al., 2021). The purpose of the warm compress is to lower body temperature in individuals experiencing hyperthermia. The warm compress technique influences body temperature reduction because the compress is directly applied to areas with large blood vessels, leading to increased circulation and capillary pressure.

The application of warm compresses in reducing fever in patients with febrile seizures has been proven to significantly reduce fever in children (Respati et al., 2022). The application of warm compresses to reduce hyperthermia in children with febrile seizures was performed by applying warm compresses who was experiencing hyperthermia (Krafft et al., 2022). This study holds significant importance for the development of paediatric nursing care as it reinforces the evidence-based practice of utilizing independent, non-pharmacological interventions alongside standard medical treatments (Watts & Robertson, 2012). While antipyretic medications are the conventional first-line response to hyperthermia, they carry potential risks of hepatotoxicity or gastrointestinal side effects when overused, and their therapeutic onset is not instantaneous (Mehmood et al., 2024). By scientifically validating the efficacy of warm compresses—specifically targeting high-vascularity areas like the axilla and inguinal regions—this research empowers nurses with a safe, cost-effective, and immediate clinical tool to accelerate heat dissipation through conduction and evaporation. Furthermore, integrating this method into standard nursing care plans helps shift the clinical focus toward a more holistic, multi-modal approach to fever management, reducing reliance solely on pharmacology. Beyond direct clinical application, this study contributes vital data to the refinement of nursing education, institutional protocols, and family-centred care. Febrile seizures are highly distressing for parents, often leading to panic and immediate demands for aggressive medication in clinical wards. By documenting the precise,

quantifiable temperature drops achieved through warm compresses, nurses can confidently educate and guide anxious caregivers on how to safely manage fevers. This transforms parents from passive onlookers into active participants in their child's acute care. Ultimately, the insights gained from this study help standardize paediatric nursing protocols, ensuring that non-pharmacological comfort measures are systematic and measurable rather than merely intuitive, thereby elevating the overall quality and safety of paediatric nursing practice.

Case Description

A 6-month-old male infant was admitted to the Dahlia Ward at Dr. Tjitrowardojo General Hospital, Purworejo, presenting with simple febrile seizures. According to the mother, the patient had been running a fever since Friday afternoon following an immunization. The child experienced a single seizure episode at 12:00 PM, which lasted approximately one minute. Objective examination revealed a body temperature of 38.8°C, a pulse rate of 139 beats per minute, a respiratory rate of 28 breaths per minute, and an SpO₂ of 96%. Physical findings included warm extremities and flushed (reddened) skin. Based on these findings, the nursing diagnosis established was hyperthermia related to the disease process (as evidenced by a body temperature of 38.8°C). The nursing intervention aimed to improve the patient's thermoregulation. The specific outcome criteria for improvement were the normalization of core body temperature to a safe range (36.5°C–37.4°C) and a reduction in skin temperature. Nursing implementation focused on the application of warm compresses as an independent, non-pharmacological approach to manage the fever. Nursing evaluation following the procedure demonstrated that the application of warm compresses successfully decreased the patient's body temperature.

Discussion

The nursing intervention performed was the application of warm compresses and warm blankets to the patient with hyperthermia on the forehead, axilla, and groin areas, using warm water compresses at 38°C for 30 minutes, repeated three times. Warm compresses cause the external body temperature to rise, leading the body to interpret the external environment as sufficiently warm, ultimately causing the body to reduce temperature regulation in the brain to prevent further increases in body temperature. The warm external temperature causes peripheral blood vessels in the skin to dilate, leading to vasodilation, which opens pores and facilitates heat dissipation, resulting in a change in body temperature (Cheng & MacDonald, 2019). Research findings indicate that warm compresses have an effect on reducing body temperature (Wulandari & Keswara, 2025; Malinti & Min Dala, 2018). Fever in children is caused by changes in the heat centre (thermoregulation) in the hypothalamus. If not addressed promptly and appropriately, fever can endanger a child's safety and lead to complications such as hyperthermia, seizures, and loss of consciousness. This describes the application of warm compresses on the forehead and axilla to lower the body temperature of children with fever. Warm compress therapy is effective in lowering the body temperature of children with hyperthermia (Lismayanti et al., 2021).

From a nursing perspective, this title encapsulates a vital intersection between acute paediatric care, evidence-based independent nursing interventions, and family-centred care. In clinical practice, managing a child with simple febrile seizures requires a rapid yet reassuring approach; while antipyretics are dependent interventions requiring medical prescription, the application of warm compresses represents an autonomous nursing action that can be initiated immediately to promote comfort and accelerate heat dissipation. Nurses view this technique not merely as a traditional comfort measure, but as a scientifically grounded physiological intervention. By placing warm compresses on high-vascularity areas like the axilla and inguinal regions, the nurse safely triggers hypothalamic mechanisms to lower the body's set-point temperature through conduction and evaporation, effectively minimizing the risk of recurrent seizures without the side-effect risks associated with medication overuse. Furthermore, this publication title highlights the nurse's critical role as an educator and advocate for family-centred care. Febrile seizures are profoundly distressing for parents, often inducing severe anxiety and helplessness as they witness their child convulsing. From a nursing standpoint, studying and validating the efficacy of warm compresses provides empirical data that nurses can use to empower anxious caregivers. By teaching parents how to properly apply these compresses, the nurse transforms them from passive, panicked onlookers into active participants in their child's therapeutic management. Ultimately, within the framework of professional nursing, this title signifies a commitment to refining clinical protocols, standardizing non-pharmacological fever management, and bridging the gap between clinical efficiency and compassionate, hands-on pediatric care.

Conclusion

The application of warm compresses was conducted over a two-day period from December 23 to 24, 2024, between 12:00 p.m. and 5:00 p.m. WIB each day. Following the intervention, the nursing diagnosis of hyperthermia was successfully resolved, meeting the established outcome criteria for improved thermoregulation, stabilized body temperature within the normal range of 36.5°C to 37.4°C, and reduced skin temperature. On the first day of implementation, the pediatric patient's body temperature decreased by 0.8°C, dropping from an initial 38.8°C to 38.0°C after the application of the warm compresses. On the second day, a more pronounced therapeutic effect was observed, with the body temperature decreasing by 1.0°C, dropping from 39.0°C to 38.0°C post-intervention. These

clinical findings demonstrate that warm compresses serve as an effective, reliable, and accessible non-pharmacological nursing intervention to assist in gradual temperature reduction during febrile episodes. To build upon these findings, future research should consider several methodological expansions to strengthen the evidence base for non-pharmacological febrile seizure management. Prospective studies could benefit from developing standardized, home-based training modules for parents to evaluate whether early caregiver administration of warm compresses at onset can effectively prevent emergency department admissions.

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