



## Shallot Compress on The Body Temperature of Baby Aged 0-12 Months Who Suffer AESI (Adverse Event of Special Interest)

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### ABSTRACT

In Indonesia, immunization is still a challenge. The proportion of children aged 12-23 months who have received all of their basic immunizations is remains low, at 57.9%. According to data from Lampung Province in 2018, 67.3 percent of children aged 12 to 23 months had received all of their baseline immunizations. Meanwhile, the proportion of complete basic immunization for infants in South Lampung Regency in 2018 was still below the target, reaching 71.6%. The research objective was to determine the effectiveness of shallot compresses on the body temperature of baby aged 0-12 months who suffer AESI (Adverse Event of Special Interest). This type of research is a pre-experiment used one group pretest posttest design. The sample in this research were baby aged 0-12 months who suffer post-immunization fever, with a sample of 17 respondents by using accidental sampling. In analysis used the T test (paired sample t-test). The results of univariate analysis obtained that the average temperature of baby aged 0-12 months who suffer AESI before being given the shallot compress treatment was 38.1 °C with a standard deviation of 0.295 and decreased after being given a shallot compress to 37.4° C with a standard deviation of 0.441. The results of the bivariate analysis showed that the effect of shallot compresses on the body temperature of baby aged 0-12 months who experienced AESI (p-value = 0,000 (p-value <  $\alpha$  (0,05)). Suggestions for the health workers to be able to teach compresses with shallot in the intervention for managing hyperthermia in children after immunization.

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#### Kata kunci:

Kompres Bawang Merah  
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### ABSTRAK

Pemberian imunisasi masih menjadi masalah di Indonesia. Proporsi imunisasi dasar lengkap pada anak umur 12-23 bulan masih rendah yakni 57,9 %. Data di Provinsi Lampung tahun 2018, proporsi imunisasi dasar lengkap pada anak umur 12-23 bulan mencapai 67,3%. Sedangkan proporsi imunisasi dasar lengkap pada bayi di Kabupaten Lampung Selatan tahun 2018 masih dibawah target yaitu mencapai 71,6%. Tujuan penelitian ini adalah mengetahui efektivitas kompres bawang merah terhadap suhu tubuh anak usia 0-12 bulan yang mengalami KIPI. Jenis penelitian ini pra eksperimen dengan menggunakan rancangan one group pretest posttest. Sampel dalam penelitian ini adalah anak usia 0-12 bulan yang mengalami demam pasca imunisasi, dengan sampel sebanyak 17 responden, menggunakan accidental sampling. Analisis menggunakan uji T (paired sample t-test). Hasil analisis univariat diperoleh Rata-rata suhu anak usia 0-12 bulan yang mengalami KIPI sebelum diberi perlakuan kompres bawang merah yaitu 38,1°C dengan standar deviasi 0,295 dan mengalami penurunan setelah diberi kompres bawang merah menjadi 37,4 oC dengan standar deviasi 0,441. Hasil analisis bivariat diperoleh adanya pengaruh kompres bawang merah terhadap suhu tubuh anak usia 0-12 bulan yang mengalami KIPI (p-value= 0,000 (p-value <  $\alpha$  (0,05)). Saran bagi petugas

kehatan untuk dapat mengajarkan kompres dengan bawang merah didalam intervensi penatalaksanaan hipertermi pada anak pasca imunisasi.

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## INTRODUCTION

Immunization is a preventive measure that has succeeded in reducing morbidity (illness) and mortality (death rate) of infectious diseases in infants and children. Immunization is a process in which vaccines are administered to infants and children in order for the body to produce antibodies to protect them from infections. Immunization attempts to guard and prevent infectious diseases that are particularly hazardous to children (Maryunani, 2012). According to the World Health Organization (WHO), 19.5 million babies globally were still missing basic vaccines in 2016. Angola, Brazil, the Democratic Republic of the Congo, Ethiopia, India, Indonesia, Iraq, Nigeria, Pakistan, and South Africa account for almost 60% of these children (IDAI, 2018).

Immunization is still a problem in Indonesia. Based on the results of the Basic Health Research (Riskesdas) in 2018, the proportion of complete basic immunization for children aged 12-23 months is still low at 57.9% (the Strategic Plan target is 90%) with a drop out rate of 32.9% and those who are not immunized reached 9.2%. Data in Lampung Province in 2018, the proportion of complete basic immunization for children aged 12-23 months reached 67.3%, with a drop out rate of 25.8% and 6.9% who were not immunized (Kemenkes RI, 2019). Meanwhile, the proportion of complete basic immunization for infants in South Lampung Regency in 2018 was still below the target, reaching 71.6% (Lampung Provincial Health Office, 2019).

The decline in immunization coverage and the increase in immunization drop outs are influenced by several factors, one of which is the AEFI (Post Immunization Follow-up Event). Parents are afraid because their child will have a fever after immunization. Giving vaccines, especially DPT, can indeed cause side effects, namely AEFI, where the main thing that most often occurs is fever which will heal in 1-2 days, then pain at the injection site, inflammation at the injection site and convulsions. Data obtained from a 2015 cohort study conducted at seven health centers in one city in Indonesia found 379 infants, where fever occurred in 246 (64.9%) children (Firdinand, 2015).

Fever is the body's resistance mechanism due to the entry of foreign objects that are usually harmless, but if it is too high it can have a bad impact, namely causing a seizure (febrile convulsion). However, this is not a reason to avoid the recommended vaccine because if it is handled properly it will not happen. In general, there are various types of treatment for fever, including warm water compresses, using chemical drugs or traditional medicines (herbal medicines). Traditional medicine is medicine obtained from natural ingredients derived from plants and can be used to avoid the side effects of chemical drugs. Traditional medicines used to treat fever include ginger (oral/drinking medicine), or red onion (external medicine). External medicine is preferred because children are more likely to experience difficulties in taking medicine (Faridah, 2018).

Shallots as a traditional medicine that is proven to not cause side effects, because the chemicals contained can mostly be digested by the body. In addition, the price is also

cheap and affordable by every community and is easy to obtain because the number is abundant (Cahyaningrum, 2014).

This is because onion is a type of plant that has been known and is commonly used as a cooking spice by the community (Rahmawati, 2012). The content of shallots, including propyl disulfide and propyl metal disulfide, which are volatile, if applied to the body, will allow the acceleration of heat transfer from the body to the skin (Faridah, 2018). In addition, the content of shallots, namely quercetin, can provide benefits as an anti-inflammatory so that it is effective in reducing fever (Rahmawati, 2012). Research conducted by Laoh (2019), regarding the effectiveness of shallot compresses on the body temperature of children with fever after immunization at the Bailang Health Center in Manado City, the results showed that shallot compresses on the body temperature of children with fever after immunization ( $p$ -value = 0.000). In addition, a study conducted by Cahyaningrum (2014) on the difference between warm compresses and shallot compresses on decreasing body temperature of children with fever, it was found that the temperature decrease in onion compresses was more than warm compresses, namely in the warm compress group the average temperature decrease was 0.976 °C while in the onion compress group the average decrease was 1.106 °C.

Based on data from the Way Panji Health Center in South Lampung Regency in 2019, data on the immunization drop out rate was 31.6%, and 9.1% did not immunize. The reported incidence of AEFI is quite high, as many as 239 infants (66.9%) of the 342 infants who were immunized. In addition, in the working area of the Way Panji Health Center, South Lampung Regency, no one has ever applied or conducted research on onion compresses as a management of fever in infants after immunization. Based on the description above, the researcher is interested in conducting research on "The effectiveness of shallot compress on the body temperature of baby aged 0-12 months who suffer aesi (adverse event of special interest)".

## METHOD

Participant characteristics and research design: The sample in this study was children aged 0-12 months who experienced post-immunization fever at the Way Panji Health Center, South Lampung Regency during the study.

Sampling procedures: The sampling technique used accidental sampling. Sample size, power and precision: The number of samples is 17 respondents.

Measures and covariates: The data collection tools in this research are pretest and posttest observation sheets and a thermometer gun in new condition so no need to calibrate.

Method used to enhance the quality of measurements: Bivariate analysis using T test analysis (paired sample t-test). The level of significance ( $\alpha$ ) used in this study was 0.05.

**RESULTS AND DISCUSSION**

**Table 1.**  
**The Average Body Temperature of Children aged 0-12 Months Experiencing AEFIs Prior to Red Onion Compress Treatment at the Way Panji Health Center, South Lampung Regency 2020**

Variabel	Mean	Median	SD	Min-Max
Body temperature Before Compress Onion	38,1	38,2	0,295	37,6- 38,6

Based on the table above, it can be seen that the average temperature of children aged 0-12 months who experienced AEFI before being treated with onion compresses was 38.1 °C with a standard deviation of 0.295.

**Table 2.**  
**The Average Body Temperature of Children aged 0-12 Months Experiencing AEFIs After Being Treated with Shallot Compress at Way Panji Health Center, South Lampung Regency 2020**

Variabel	Mean	Median	SD	Min-Max
Body temperature After giving onion compress	37,4	37,6	0,441	36,3- 38,0

Based on the table above, it can be seen that the average temperature of children aged 0-12 months who experienced AEFI after being treated with onion compresses was 37.4°C with a standard deviation of 0.441.

**Table 3.**  
**The Effectiveness of the Shallot Compress on the Body Temperature of Children aged 0-12 Months Experiencing AEFI at the Way Panji Health Center, South Lampung Regency in 2020**

Variabel	Mean	Mean Differences	SD	P-Value
Body temperature after giving onion compress	38,1	0,688	0,259	0,000
Body temperature before giving onion compress	37,4			

According to the table above, the average temperature decrease after being given onion compress is 0.688°C 0.259. Based on the p-value = 0.000 (p-value (0.05)) of the paired sample t-test, it can be inferred that onion compresses have an influence on the body temperature of children aged 0-12 months who have AEFI at the Way Panji Public Health Center of South Lampung Regency in 2020.

**Discussion Univariate Analysis**

**Average body temperature of children aged 0-12 months who experience AEFI before being given onion compress**

Based on the results of the study, it was found that the average temperature of children aged 0-12 months who experienced AEFI before being treated with onion compresses was 38.1°C with a standard deviation of 0.295.

This is in line with the theory put forward by Maryunani (2012), fever is a condition where the body temperature is higher than usual or above 37°C, and is a symptom of a disease, both infectious and non-infectious. Non-infectious causes include post-immunization.

According to the Indonesian Ministry of Health (2015), that medical events related to immunization in the form of vaccine reactions, injection reactions, pharmacological effects, and so on, which are manifested, one of which is an increase in body temperature, are also called post-immunization follow-up events. This increase in temperature, according to Karnia (2017), is a physiological response of the body to cytokine-mediated disease and is characterized by an increase in body center temperature and immune complex activity. Body temperature is affected by the thermostat in the hypothalamus. Under normal circumstances it is always set at a set point of around 37°C, after information about temperature is processed in the hypothalamus, the formation and release of heat are determined according to changes in the set point.

The results of this study are also in line with research conducted by Faridah (2018), regarding the effect of giving crushed shallots as a lowering of body temperature in fever toddlers at the Lubuk Buaya Public Health Center, Padang City in 2018, in a univariate analysis it was found that the average body temperature before giving onion collision is 37.9°C or higher than the normal temperature.

According to the researcher's assumptions, the average temperature of children aged 0-12 months who experienced AEFI before being given the onion compress treatment was an increase in body temperature that generally occurred in children after immunization. In this study, the average child's body temperature increased or deviated higher than the normal temperature in general. The increase in body temperature is influenced by the process of inflammation due to immunological reactions in the body which will affect the temperature regulation center or set point in the hypothalamus. This will cause the body's inability to increase heat loss or decrease heat production resulting in an increase in body temperature.

**Average body temperature of children aged 0-12 months who experience AEFI before being given red onion compress treatment**

Based on the results of the study, it was found that the average temperature of children aged 0-12 months who experienced AEFI after being treated with onion compresses was 37.4°C with a standard deviation of 0.441.

This is in line with the theory put forward by Rahmawati (2012), that shallot is a type of plant commonly used as a spice in cooking by the community. Shallots can prevent and cure various diseases. Cycloallin content is useful for lowering body temperature. This presence is the same as several other ingredients contained in shallots, namely kaemfreol, quercetin, flotoglusin, and metiallin. All of these work to lower body temperature, so it is natural that onions are believed to treat fever. The use of shallots to lower the

temperature is by cutting the onion bulbs thinly then placing them in a bowl and crushing them by squeezing the sliced bulbs. Mix it with enough coconut oil and then apply it on the body including the back, chest, feet and hands of children who have fever. Let stand for  $\pm$  15 minutes until the fever goes down.

The results of this study are also in line with research conducted by Laoh (2019), regarding the effectiveness of shallot compresses on the body temperature of children with fever after immunization at the Bailang Health Center in Manado City .

According to the researcher's assumptions, the average temperature of children aged 0-12 months who experienced AEFI after being treated with onion compresses was within the normal body temperature range, which was due to the administration of compresses using red onions. Some of the content of shallots used for compressing children with fever causes a decrease in body temperature from which originally deviated higher than the normal value to decrease within the normal range

### ***Bivariate Analysis The Effectiveness of Shallot Compress on Body Temperature of Children aged 0-12 Months Experiencing AEFI***

Based on the results of the study, it was found that there was an effect of shallot compresses on the body temperature of children aged 0-12 months who experienced AEFI at the Way Panji Health Center, South Lampung Regency in 2020 (p-value = 0.000 (p-value < (0.05)).

This is in line with the theory put forward by Rahmawati, (2012), that onion is a natural medicine that is efficacious for treating fever. The content of substances contained in shallots include cycloallin, a substance contained in shallots whose presence is very useful for lowering body temperature. The content of phloroglucin functions to lower body temperature by increasing evaporation by facilitating the production of sweat and urine. The content of essential oils is also useful for improving blood circulation so that it improves circulation and the process of removing heat from the skin. The content of quercetin provides significant benefits as an anti-inflammatory. The flavonoids contained in shallots are also substances known as anti-inflammatory substances (anti-inflammatory) so that they can reduce body temperature due to the inflammatory process.

The results of this study are also in line with the research conducted by Faridah (2018), regarding the effect of giving crushed shallots as a lowering of body temperature in fever toddlers at the Lubuk Buaya Health Center, Padang City in 2018, the results obtained in a bivariate analysis that the effect of giving crushed shallots as a body temperature in children with fever (p-value = 0.000).

According to the researcher's assumptions, the effect of onion compresses on the body temperature of children aged 0-12 months who experience AEFI is caused by the ingredients contained in shallots, which can affect the decrease in the child's body temperature, where in the ingredients used to compress shallots there are contains cycloallin, phloroglucin, essential oils, quercetin and flavonoids which generally function as natural antipyretics that can lower body temperature. The content of the onion will be responded to by the receptors found on the skin in children who are compressed, resulting in impulses that are transmitted to the hypothalamus or thermoregulator then this causes the body's response by reducing skin temperature through various mechanisms such as facilitating the production of sweat and urine thereby

increasing evaporation and improving circulation and the process of releasing heat to the skin so that gradually the body temperature can return to normal.

The results of this study showed that overall children, namely 17 children who received compresses experienced a decrease in body temperature of 0.68 °C. Thus it is proven that the onion compress is proven to significantly reduce body temperature. With the effectiveness of the shallot compress in reducing body temperature in children with fever, the shallot compress is appropriate to be used as a replacement therapy for pharmacological drugs in children after immunization, especially in children who are difficult to take medication.

### **CONCLUSIONS AND SUGGESTIONS**

The average temperature of children aged 0-12 months who had AEFI before being treated with shallot compresses was 38.1°C, with a standard deviation of 0.295, according to univariate analysis. The average temperature of children aged 0-12 months who had AEFI after being treated with shallot compresses was 37.4 degrees Celsius, with a standard variation of 0.441 degrees Celsius. Bivariate analysis revealed that an onion compress had an effect on the body temperature of children aged 0-12 months who had AEFI (p-value = 0.000 (0.05)).

Suggestions are expected for every health institution to be able to apply compresses with shallots in the intervention of hyperthermia management in children after immunization. It is hoped that health workers can implement and socialize to the public regarding the provision of red onion compresses in reducing body temperature in children who have fever after immunization

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