

Effectiveness Of Onion Compress On The Event Swelling In Children After Pentabio Immunization At Puskesmas Plawad In 2023

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Abstract.

Background : Immunization is an effort to actively generate/increase a person's immunity against a disease so that if one day they are exposed to the disease they will not get sick or only experience a mild illness. Swollen immunization marks are a normal side effect and are experienced by many people. This swelling is the body's reaction to the vaccine administration process and is a sign that the body is starting to form immunity to disease. Research purposes : Knowing the effectiveness of shallot compresses on the incidence of swelling in children after immunization at the Plawad Health Center in 2023. Research methods : This type of research is analytic observational with a case control design. The sample of this study were children who received DPT immunization. The sample technique uses accidental sampling technique. Data collection uses an observation sheet. The data analysis used was univariate analysis and bivariate analysis using the chi square test. Research result : The results of the chi square test with a p value of $0.000 < 0.05$ indicate that there is an effect of onion compresses on the incidence of swelling after immunization. Thus it can be seen that onion compresses are effective in alleviating the incidence of swelling in children after immunization. Based on the analysis of the Odds Ratio (OR) it was obtained at 8.250 (95% CI = 2.530-26.900). This shows that onion compresses are 8,250 times effective in overcoming swelling after immunization. Conclusion : Onion compresses are effective in overcoming the incidence of swelling in children after immunization.

Keywords : Immunization, Swelling and Shallot Compress.

I. INTRODUCTION

Immunization is the most effective and efficient public health effort in preventing diseases and reducing mortality rates such as smallpox, polio, tuberculosis, hepatitis B, diphtheria, measles, rubella and congenital rubella syndrome (CRS), tetanus, pneumonia (pneumonia) and meningitis (inflammation of the lining of the brain). Immunization in children under five saves around 2–3 million lives worldwide every year and contributes greatly to reducing the global infant mortality rate from 65 per 1,000 live births in 1990 to 29 in 2018 [1]. Implementation of immunization is expected to reduce the number of children under five who die from diseases that can be prevented by immunization (PD31). However, in recent years, the infant mortality rate due to infectious diseases that should have been prevented by immunization is still relatively high. The 2020 WHO report states that there are 20 million children who have not received routine immunization services for toddlers around the world every year. The high number of children who have not received immunization has resulted in several diseases that can cause paralysis and even death, which should be prevented by vaccines, to reappear in developed and developing countries. These diseases include measles, pertussis, diphtheria and polio [2]. In Indonesia in 2019 the coverage of IDL (Complete Basic Immunization) in infants reached 93.7%. It is known that all babies in the provinces of Bali, West Nusa Tenggara, East Java, South Sumatra, Jambi, DIY and Central Java have received Complete Basic Immunization. Meanwhile, the province with the lowest achievement was Aceh (50.9%) [3]. In 2020, immunization coverage in Indonesia has decreased by 83.3%. This figure has not met the 2020 Strategic Plan target of 92.9%.

Immunization coverage for 2020 is the lowest Complete Basic Immunization coverage in the 2011-2020 period as a result of the COVID-19 pandemic. Immunization is an effort to actively generate/increase a person's immunity against a disease so that if one day they are exposed to the disease they will not get sick or

only experience a mild illness. Swollen immunization marks are a normal side effect and are experienced by many people. This swelling is the body's reaction to the vaccine administration process and is a sign that the body is starting to form immunity to disease. A few hours after immunization, the skin around the injection area becomes red, swollen and painful. However, this condition will subside on its own in the next 2-3 days. Immunization scars that swell are included in Post-Immunization Follow-up Events (AEFI). The way to deal with swollen immunization marks is by giving compresses, giving pain relievers, and distracting the child. Shallots can be used for compresses, this is because red onions contain organic sulfur compounds, namely allylcysteine sulfoxide (Aliin), which functions to destroy blood clots. This makes blood circulation smooth. According to dr. Soedjatmiko, Sp.A(K), M.Sc., that side effects caused by immunization such as swollen skin, hard lumps, child fever, pain and difficulty eating or drinking breast milk after immunization. Complaints that occur after the baby gets immunizations make the baby feel uncomfortable. This happens because of the body's natural response because something has entered the baby's body. Generally, to deal with complaints of swelling and pain at the injection site, pain relievers can be given, which are usually obtained immediately after the baby is immunized. Some mothers also use grated shallots to rub around the former child's immunization area because the shallot water will provide warmth which will give a feeling of comfort and little by little relieve the pain. Therefore, researchers are interested in conducting research with the title effectiveness of swelling medicine with shallot compresses on the incidence of swelling in children after immunization at the Plawad Health Center in 2023.

II. METHODS

The method in this research is quantitative. This study used an observational analytic research design with a case control approach. The aim of this type of research was to determine the effectiveness of shallot compresses on the incidence of swelling in children after pentabio immunization.

III. RESULTS AND DISCUSSION

Characteristics of Respondents

Table 1. Distribution of respondent characteristics based on age, sex, fifth DPT immunization

No.	Category	F	%
1.	Age		
	2 months	17	26.6%
	3 months	15	23.4%
	4 months	18	28.1%
	5 months	11	17.2%
	6 months	3	4.7%
	Total	64	100%
2.	Gender		
	Man	38	59.4%
	Woman	26	40.6%
	Total	64	100%
3.	DPT immunization to		
	DPT 1	32	50.0%
	DPT 2	15	23.4%
	DPT 3	17	26.6%
	Total	64	100%

Source: Primary Data, 2023

The table above shows that the age distribution in this study consisted of 5 categories, namely age 2 months, 3 months, 4 months 5 months and 6 months. It can be seen that at the age of 2 months there were 17 people (26.6%), at 3 months there were 15 people (23.4%), at 4 months there were 18 people (28.1%), at 5 months there were 11 people (17.2%) and at 6 months there were 3 people (4.7%). In the distribution based on gender, there were 38 men (59.4%) while there were 26 women (40.6%). In the distribution based on DPT immunization there are 3 categories, namely DPT 1 immunization of 32 people (50%), DPT 2 immunization of 15 people (23.4%) and DPT 3 immunization of 17 people (26.6%).

Univariate analysis

Table 2. Frequency Distribution of Swelling

No.	Swelling Event	F	%
1.	Swollen	39	60.9%
2.	Not Swollen	25	39.1%
Total		64	100.0%

Source: Priemr Data, 2023

The table above shows that in the variable incidence of swelling most of them experienced swelling after DPT immunization as many as 39 people (60.9%) and those who were not swollen were 25 people (39%).

Table 3. Frequency Distribution of Shallot Compresses

No.	Red Onion Compress	F	%
1.	Onion Compress is done	43	67.2%
2.	Do not do red onion compresses	21	32.8%
Total		64	100.0%

Source: Primary Data, 2023

The table above shows that in the variable compressing shallots, most of them compress shallots as many as 43 people (67%) and those who do not compress shallots are 21 persons (32.8%).

Bivariate Analysis

Table 4. Effectiveness of shallot compresses against swelling in children after immunization

Onion compress	Swelling incident						OR 95% CI	P value
	Swollen		Not Swollen		Total			
	n	%	n	%	n	%		
Red Onion compress	33	84.6%	10	40.0%	43	67.2%	8,250(2,530-26,900)	0,000
Don't do red onion compresses	6	15.4%	15	60.0%	21	32.8%		
Total	39	100%	25	100%	64	100%		

The table above shows the results of the chi square test with a p value of 0.000 < 0.05 indicating the effect of onion compresses on the incidence of swelling after immunization. Thus it can be seen that onion compresses are effective in alleviating the incidence of swelling in children after immunization. Based on the analysis of the Odds Ratio (OR) it was obtained at 8.250 (95% CI = 2.530-26.900). This shows that onion compresses are 8,250 times effective in overcoming swelling after immunization.

Discussion

Swelling Event

Based on Table 5.2, it shows that in the variable incidence of swelling, most of them experienced swelling after DPT immunization as many as 39 people (60.9%) and those who did not have swelling were 25 people (39%). In line with the study in Lithuania, the most common AEFIs were local reactions in the form of redness at the injection site (66%) and fussiness (61%). In addition, it is also in line with research conducted by Uswatun, 2016 that the most commonly experienced local AEFI symptom is swelling at the injection site [4]. DPT immunization is an effort to administer diphtheria toxoid, pertussis vaccine and tetanus toxoid which aims to induce active immunity against diphtheria, pertussis and tetanus at the same time [5]. DPT immunization is a vaccine that protects against diphtheria, pertussis, and tetanus [6]. The DPT vaccine is given by injection in the arm and thigh. DPT immunization is given 3 times, namely when the child is two months old (DPT-1), three months (DPT-2) and four months (DPT-3) with an interval of not less than 4 weeks. Repeat DPT immunization is given 1 year after DPT-3 and preschool age (5-6 years). If a child has an allergic reaction to the vaccine, pertussis, then he should be given DT, not DPT. DPT/DT is a vaccine that contains three elements, namely the toxoid corynebacterium diphtheriae (diphtheria), the bacterium bordetella pertussis, and the toxoid clostridium tetani (tetanus). The condition of the body when injected with bacteria or viruses that have been weakened will cause symptoms as a quick response in the formation of antibodies. According to research conducted by Permata et al (2018) almost all toddlers experience post-immunization side effects on the first day and will last optimally depending on the conditions and symptoms

of each. Side effects of pain at the injection site can last for 2 days, redness persists for 3 days, increase in body temperature or fever for 4 days and swelling can last for 7 days after immunization.

However, side effects will disappear more quickly if handled properly. The results of the above study are supported by WHO (2018) which states that post-immunization side effects usually appear one to two days after injection [7]. According to Hardianti, et al (2019) post-injection of immunization can cause various side effects in toddlers, one of which is swelling at the injection site. Swelling around or at the injection site occurs because the injection is not deep enough. For treatment or healing, you can use a warm compress or traditionally use an onion compress on the former immunization injection, but if there is no change, you can go to the nearest health center or nearest health worker [5]. The use of the DPT vaccine is actually safe but not without risk because some people can experience mild or severe reactions after immunization, these reactions are called Post-Immunization Follow-up Events (AEFI) [8]. Adverse events following DPT immunization in the form of: local reaction redness, swelling and pain at the injection site occurred half (42.9%) the most serious adverse event was the occurrence of acute encephalopathy or anaphylactic reaction caused by pertussis vaccine. One of the causes of swollen skin after immunization is that the body begins to form immunity to disease, this inflammation generally occurs a few hours after immunization and subsides on its own within one week. All clinical symptoms that occur as a result of needlestick trauma, either directly or indirectly, must be recorded as an AEFI reaction. Immediate injection reactions such as pain, swelling, and redness at the injection site. The prevention for injection reactions includes the correct injection technique, a calm atmosphere at the injection site, overcoming the fear that appears in the baby.

Red Onion Compress

Based on Table 5.3, it shows that in the onion compressing variable, the majority compressed shallots as many as 43 people (67%) and those who did not compress shallots as many as 21 people (32.8%). Based on the results of research in line with research [9] that shallots can relieve swelling after immunization. In addition, the greater the mass of shallots given, the less amount of time it takes to relieve swelling, making it more effective in reducing swelling. Shallots contain essential oils which can also improve blood circulation so that blood circulation becomes smooth and the baby feels comfortable. According to dr. Soedjatmiko, Sp.A(K), M.Sc., that side effects caused by immunization such as swollen skin, hard lumps, child fever, pain and difficulty eating or drinking breast milk after immunization. Complaints that occur after the baby gets immunizations make the baby feel uncomfortable. This happens because of the body's natural response because something has entered the baby's body. Generally, to deal with complaints of swelling and pain in the injection site, fever-reducing drugs can be given which are usually obtained immediately after the baby is immunized or warm compresses are recommended. Some mothers also use grated shallots to rub around the former child's immunization area because the shallot water will provide warmth which will give a feeling of comfort and little by little relieve the pain. In the community, shallots (*Allium Cepa* var *aggregatum*) are known as one of the special ingredients in the manufacture of food seasonings, but it turns out that they can also be used to reduce fever in children and reduce pain because shallots contain chemicals such as cycloalliin, flavonoids, prostaglandins A-1, Adenosine which are anticancer, antibacterial, hypo-allergenic and anti-inflammatory.

The results of a study by Sanaz Mahdipour et al. showed that the oral use of shallot extracts reduced neuropathic pain behaviors. The benefits of shallots include being used to treat babies who have fever by grating the shallots first and mixing them with coconut oil or olive oil. You can also use telon oil and then rub it all over the baby's body. Apart from that, it can also be used to treat flatulence or colds. This can be done, namely, grind the red onion first and then rub it on the baby's stomach. In addition, the use of shallots for babies is that they can improve blood circulation and can treat various ailments commonly experienced by babies such as coughs, colds and intestinal worms. Existing uses are related to the content possessed by shallots, including essential oils which function as antibacterial and antipyretic. For a long time, shallots have been used as traditional medicine either alone or in combination with other medicinal ingredients to treat various diseases. Shallots (*Allium cepa* var. *Ascalonicum*) can be used for compresses because they contain an organosulfur compound known as Alliin. Shallots also contain antibacterial and antiviral compounds.

Therefore shallots are very helpful in fighting infection. Shallots also contain active compounds that have anti-inflammatory effects. When the body is inflamed, these compounds can help relieve inflammation. Therefore red onions are believed to help relieve fever, especially for children [10].

The Effectiveness of Shallot Compresses Against Swelling in Children After Immunization

Based on Table 5.4, the results of the chi square test with a p value of $0.000 < 0.05$ indicate that there is an effect of onion compresses on the incidence of swelling after immunization. Thus it can be seen that onion compresses are effective in alleviating the incidence of swelling in children after immunization. Based on the analysis of the Odds Ratio (OR) it was obtained at 8.250 (95% CI = 2.530-26.900). This shows that onion compresses are 8,250 times effective in overcoming swelling after immunization. There are many references from previous research that compresses using plants or herbs can reduce pain due to swelling and do not cause harmful side effects, one of which is compressed onions. According to [11] the purpose of giving compresses is to improve blood circulation, to give a feeling of warmth, comfort and calm to the client. So that it can relieve swelling in babies after immunization.

But it's best before compressing the swollen area, the shallots must be washed first and covered using a small thin towel or gauze. This is due to the fact that after immunization there may be a local reaction at the injection site or a general reaction in the form of certain complaints and symptoms, depending on the type of vaccine. Local reactions can include redness, swelling and pain at the injection site. These reactions are generally mild, easily handled by parents or caregivers and usually go away on their own, ranging from 1 day to 1 week. Using red onion compresses can help relieve the symptoms of AEFI DPT, especially swelling after immunization. Shallots can be used as an alternative to compresses in dealing with swelling, this cannot be separated from the role of the compounds contained in these herbal bulbs. According to [9] shallots can be used as compresses because they contain an organic sulfur compound called Allylcysteine sulfoxide (Alliin) which reacts with the enzyme alliinase (a catalytic enzyme produced by shallots themselves when crushed shallots).

IV. CONCLUSION

Based on the results of the study it can be concluded that:

- a. From the results of the study on the distribution of the frequency of occurrence of swelling in infants after immunization, most of them experienced swelling after DPT immunization as many as 39 people (60.9%) and those who were not swollen were 25 people (39%).
- b. From the results of the study on the distribution of the frequency of compressing shallots, most of them compressed shallots as many as 43 people (67%) and those who did not compress shallots as many as 21 people (32.8%).
- c. The results of the chi square test with a p value of $0.000 < 0.05$ indicate that there is an effect of onion compresses on the incidence of swelling after immunization. Thus it can be seen that onion compresses are effective in alleviating the incidence of swelling in children after immunization. Based on the analysis of the Odds Ratio (OR) it was obtained at 8.250 (95% CI = 2.530-26.900). This shows that onion compresses are 8,250 times effective in overcoming swelling after immunization.

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