

THE EFFECTIVENESS OF GIVING ZINC SUPPLEMENTS IN ACCELERATING POSTPARTUM UTERINE INVOLUTION

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Abstract. Postpartum hemorrhage is the main cause of 150,000 maternal deaths every year in the world and almost 4 out of 5 deaths due to postpartum hemorrhage occur within 4 hours after delivery. The most common causes of bleeding are uterine atony and retained placenta, other causes of bleeding are cervical or vaginal lacerations (perineal rupture), uterine inversion, and uterine rupture (Prawirohardjo, 2014). This study aims to analyze the effectiveness of zinc supplementation in accelerating uterine involution in postpartum mothers. The respondents were postpartum mothers at the Jakenan Health Center in June-July 2021. The study used a quasi-experimental research design with a posttest-only control group design. The results showed that the data were not normally distributed (tested by the Shapiro-Wilk test because the sample data was less than 50) with a significant value of 0.008 (less than 0.05 or sig. <0.05). The results of the different tests using the Mann-Whitney U test showed that the statistical value of the Z test was small, namely -2.570, and the sig.2-tailed value was 0.010 <0.05. Therefore, the test results are statistically significant, thus rejecting the null hypothesis where there is a difference in the distribution of scores in postpartum mothers who drink zinc with mothers who do not take zinc. Recommendation: postpartum women need to take 20 mg zinc tablets for 7 days

Keywords: Giving zinc, uterine involution, postpartum

INTRODUCTION

The Maternal Mortality Rate (MMR) is an important indicator in determining the degree of public health, based on the results of the 2012 Indonesian Demographic and Health Survey (IDHS) the maternal mortality rate reached 359 per 100,000 live births, still very far from the MDGs target in 2015. maternal mortality 102 per 100,000 lives (RI Ministry of Health, 2012).

Based on the global agreement (Millennium Development Goals/MDGs, 2000) in 2015 it is expected that the Maternal Mortality Rate will decrease by three-quarters in the period 1990-2015 and the Infant Mortality Rate and Under-five Mortality Rate will decrease by two-thirds in the period 1990-2015. Based on this, Indonesia is committed to reducing MMR to 102 per 100,000 live births and IMR from 68 to 23 per 1000 live births in 2015. According to data from the Health Service, the total maternal mortality rate in Central Java province in 2016 was 117 per 100,000 births. life. The most maternal deaths were during the postpartum period, with 79 cases (Central Java Health Office, 2016).

The Maternal Mortality Rate (MMR) reflects the risks faced by mothers during pregnancy and after delivery which are influenced by the nutritional status of the mother, socioeconomic conditions, poor health before pregnancy, the incidence of various complications during pregnancy and birth, and availability and use of facilities. health services including prenatal and obstetric services. The high maternal mortality rate indicates low socioeconomic conditions and low health service facilities, including prenatal and obstetric services.

Causes of maternal death include not having access to quality maternal health services, especially emergency services on time, with a background of being late in recognizing danger signs and making decisions, and being late in reaching a health facility. In addition, the cause of maternal death cannot be separated from the condition of the mother herself and is one of the 4 "too" criteria, namely too old at the time of delivery (> 35 years), too young (< 20 years), too many children (> 4 children).) and too close spacing of births/parity (< 2 years). In addition, 15 people died at the reproductive age of 20 -34 years (83.3%), and 3 people at the age > 35 years (16.7%). The service achievements of postpartum mothers who received health services were 15,614 (94.3%).

Zinc is the body's main mineral which is a component of the formation of more than 300 enzymes needed when healing wounds, maintaining adult fertility and child growth processes, protein synthesis, helping cell reproduction, maintaining vision, stimulating immunity, and preventing free radicals. Zinc

is also an essential element of the body in maintaining skin health and preventing certain skin diseases. Zinc supplements have been widely used as the main component for burns, red spots due to diapers, and other lesion conditions (Matsier, 2006). The puerperium is the time from the delivery of the placenta and fetal membranes (signifying the end of the intrapartum period) to the return of the female reproductive tract to a non-pregnant, not pre-pregnant state, as is often said. At this time it is also called the puerperium and the recovery period lasts about 6 weeks (Varney, 2008).

Postpartum hemorrhage is the main cause of 150,000 maternal deaths every year in the world and almost 4 out of 5 deaths due to postpartum hemorrhage occur within 4 hours after delivery. Postpartum hemorrhage is a complication that occurs between labor and the postpartum period. The most common causes of bleeding are uterine atony and retained placenta, other causes of bleeding are cervical or vaginal lacerations (perineal rupture), uterine inversion, and uterine rupture (Prawirohardjo, 2014).

During the puerperium, high-quality nutritional intake is needed with sufficient calories, protein, vitamins, and minerals. The mother's nutritional needs increase by 25% to restore the mother's energy or activity, metabolism, and reserves in the body, healing the birth canal, and meeting the baby's needs in the form of milk production (Hartiningtiyaswati, 2010). Other nutrients that play a role, namely minerals such as zinc (Zn) play a role in increasing cell proliferation, epithelialization processes, and collagen strength (Steen, 2007). This can be related to the process of uterine involution of the puerperal mother. Existing research has successfully traced that most of the administration of zinc is associated with the healing of second-degree perineal wounds in postpartum mothers.

Based on the description above, zinc is thought to have an important role in accelerating uterine involution in postpartum women. Therefore, researchers are interested in knowing the effectiveness of giving zinc supplements in accelerating uterine involution in postpartum women at the Jakenan Health Center, Kab. Starch. The purpose of this study was to determine differences in uterine involution in postpartum women who received zinc supplements and those who did not.

METHODS

Methods Include an Explanation of how / step of research in a systematic way and detailed step by-step written in the section. The method does not contain any theory but rather emphasizes what has been done in research to obtain results in line with the objectives. Study This was carried out at the Jakenan Health Center, Kab. Starch from July to September 2021. The study used a quasi-experimental research design with a randomized pretest and posttest control group design. The population in this study were postpartum mothers 7 days after birth who were in the Jakenan Health Center, Kab. Starch. The research subjects were all treatment and control groups. The treatment group was postpartum women who received zinc supplements and the control group was postpartum women who did not receive zinc supplements.

The inclusion criteria for this study were normal postpartum mothers, willing to be respondents, cooperative, aged maximum of 35 years, and no protein abstinence. Exclusion criteria were mothers suffering from diabetes mellitus, suffering from other diseases/complications that made it impossible to be a respondent, and having given birth more than 3 times. The number of samples that used as many as 10 subjects in each group has been added to the possibility of dropping out (10%).

Subjects were taken by accidental random sampling. The Research Instrument is a 20 mg tablet of zinc supplement. Data collection was carried out by conducting interviews and an examination of TFU. Data processing is done through editing and coding. Differences in TFU in postpartum women were analyzed using the Mann-Whitney U test because the data were not normally distributed. This research uses funds from STIKes Bakti Utama Pati for the 2020/2021 fiscal year

RESULTS AND DISCUSSION

Univariate analysis

TFU's Mother Does Not Drink Zinc

Based on the table, in a group of postpartum women (10 postpartum women) who did not drink zinc, it was found that the highest TFU was 4 fingers above the pubic symphysis, and the lowest TFU was 2 fingers above the pubic symphysis. The average TFU is 2.7 fingers above the symphysis. The median TFU is 2.5 fingers above the symphysis pubis

Table 1: Description of TFU Mothers Do Not Drink Zinc

			Statistics	std. Error
TFU_NonZink	Means		2.70	.260
	95% Confidence Interval for Mean	LowerBound	2.11	
		Upper bound	3.29	
	5% Trimmed Mean		2.67	
	Median		2.50	
	Variances		.678	
	std. Deviation		.823	
	Minimum		2	
	Maximum		4	
	Range		2	
	Interquartile Range		1	
	Skewness		.687	.687
	kurtosis		-1,043	1,334

TFU Mother Gets Zink

Based on this table, in a group of postpartum women (10 postpartum women) who drank zinc on the first to seventh days of puerperium, it was found that the highest TFU was 2 fingers above the pubic symphysis, the lowest TFU was 1 finger above the pubic symphysis. The average TFU is 1.9 fingers above the symphysis. The median TFU is 2 fingers above the symphysis pubis.

Table 2. Description of TFU Mothers Drinking Zinc

Descriptives			Statistics	std. Error
TFU_NonZink	Means		2.70	.260
	95% Confidence Interval for Mean	LowerBound	2.11	
		Upper bound	3.29	
	5% Trimmed Mean		2.67	
	Median		2.50	
	Variances		.678	
	std. Deviation		.823	
	Minimum		2	
	Maximum		4	
	Range		2	
	Interquartile Range		1	
	Skewness		.687	.687
	kurtosis		-1,043	1,334

Bivariate Analysis

The data that has been collected is tested for the normality of the data. Due to the small number of samples ($N < 50$), the data normality test used the Shapiro-Wilk test with a significance value of 0.008 (less than 0.05 or sig. < 0.05). Thus the data is not normally distributed. Because the data are not normally distributed, the sample is small, and the ratio scale is then a different test is carried out using the Mann-Whitney U test, the results show that the data is not normally distributed (tested by the Shapiro-Wilk test because the data sample is less than 50) with a value significance of 0.008 (less than 0.05 or sig. < 0.05). The results of the different tests using the Mann Whitney U test showed that the small value of the Z test statistic was -2.570 and the sig.2-tailed value was 0.010 < 0.05 . Therefore, the test results are statistically significant, thereby rejecting the null hypothesis where there is a difference in the distribution of scores between postpartum mothers who drink zinc and mothers who do not drink zinc. As for further as in the following table.

Table 3. Results of the Mann-Whitney Test Analysis

	n	Median (minimum-maximum)	<i>p.s</i>
TFU postpartum women drink zinc	10	2.00 (1.00-2.00)	0.010
TFU postpartum women do not drink zinc	10	2.50 (2.00-4.00)	
The Mann-Whitney test			

Discussion

Research on a group of postpartum women who did not drink zinc (10 women) gave the result that the highest maternal TFU was 4 fingers above the pubic symphysis, and the lowest TFU was 2 fingers above the pubic symphysis. The average TFU is 2.7 fingers above the symphysis. The median TFU is 2.5 fingers above the symphysis pubis. This is the group without intervention given zinc 20 mg. TFU drops naturally with the mother's daily activities. While the group of postpartum women (10 postpartum women) drank zinc on the first to the seventh day of childbirth, it was found that the highest TFU was 2 fingers above the pubic symphysis, and the lowest TFU was 1 finger above the pubic symphysis. The average TFU is 1.9 fingers above the symphysis. The median TFU is 2 fingers above the symphysis pubis.

The data that has been collected is tested for the normality of the data. Due to the small number of samples ($N < 50$), the data normality test used the Shapiro-Wilk test with a significance value of 0.008 (less than 0.05 or sig. < 0.05). Thus the data is not normally distributed. Because the data were not normally distributed, a different test was then carried out using the Mann-Whitney U test, the result was a significance value of 0.008 (less than 0.05 or sig. < 0.05). The results of the different tests using the Mann Whitney U test showed that the small value of the Z test statistic was -2.570 and the sig.2-tailed value was 0.010 < 0.05 . Therefore, the test results are statistically significant, thereby rejecting the null hypothesis where there is a difference in the distribution of scores between postpartum mothers who drink zinc and mothers who do not drink zinc.

Postpartum mothers experience very complex changes in their bodies, both physically and psychologically. Significant changes in the mother's body physically include changes in the uterus. Midwives carry out periodic checks to ensure that the process of uterine involution can take place normally without bleeding or infection. One sign of an abnormality in the uterus is a higher-than-normal size of the Uterine Fundus (TFU). Zinc is the body's main mineral which is a component of the formation of more than 300 enzymes needed when healing wounds, maintaining adult fertility and child growth processes, protein synthesis, helping cell reproduction, maintaining vision, stimulating immunity, and preventing free radicals. Zinc is also an essential element of the body in maintaining skin health and preventing certain skin diseases. Zinc supplements have been widely used as the main component for burns, red spots due to diapers, and other lesion conditions (Matsier, 2006).

During the puerperium, high-quality nutritional intake is needed with sufficient calories, protein, vitamins, and minerals. The mother's nutritional needs increase by 25% for the recovery of the mother's energy or activity, metabolism, and reserves in the body, healing the birth canal, and meeting the baby's needs in the form of milk production (Hartiningtiyaswati, 2010). Other nutrients that play a role, namely minerals such as zinc (Zn) play a role in increasing cell proliferation, epithelialization processes, and collagen strength (Steen, 2007). This can be related to the process of uterine involution of the puerperal mother. Existing research has successfully traced that most zinc administration is associated with postpartum perineal wound healing, but has not been associated with TFU.

Elok (2017) in his research stated that zinc supplementation is very useful for clients who currently have injuries, including scars on the placental implantation scars in the uterus. One indicator that the wound is in good condition and recovering quickly is to see the TFU. In the group of postpartum women who did not drink zinc, there was a decrease in TFU that varied and tended to be slower than those who consumed zinc. The presence of TFU that varied in the ten participants could be due to several factors, namely knowledge, nutrition, mobilization, uterine stimulation, and personal hygiene. Substances needed by postpartum mothers include calories, protein, calcium and vitamin D, magnesium, green vegetables and fruit, complex carbohydrates, fat, salt, fluids, vitamins, zinc (zinc), and DHA (Windy, 2009).

The acceleration of wound healing (including in the uterine cavity) experienced by respondents cannot be separated from mobilization and personal hygiene factors. Roper (2009) states that immediate, gradual mobilization is very useful for the wound-healing process and prevents infection and venous thrombosis.

CONCLUSION

Statistical test results can be concluded that there is a significant difference between the

consumption of zinc supplements 20 mg once a week and no consumption of zinc on the decrease in TFU (with the Mann-Whitney test, a significance value of 0.008 was obtained). The results of the different tests using the Mann Whitney U test showed that the small value of the Z test statistic was -2.570 and the sig.2-tailed value was 0.010 <0.05. Giving zinc to postpartum mothers 1-7 days 20 mg. day while continuing to consume food as a natural source of nutrition for stunted toddlers needs to be considered by relevant stakeholders.

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