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RESEARCH ARTICLE

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Tablets Added Combination Blood Vitamin C Affects The Increase of Hemoglobin Levels in Pregnant Women in The Work Area of Karang Anyar Health Center, Beringin Sub-district, Deli Serdang District

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ABSTRACT

Anemia in pregnant women has a negative impact on both the mother and the fetus, some of which may occur: in the first trimester (abortion, missed abortion and congenital abnormalities), in the second trimester (antepartum bleeding, premature birth, fetus births with anemia, low birth weight, high-birth delivery, high fatigue), when inpartu (primary and secondary disruption, fatigue, high activity delivery), postpartum (difficult to heal, easy puerperalis febris, uterine involution disturbance, death high mothers resulting from bleeding and puerperal infection). This study aimed to determine the effectiveness of giving tablets added blood combination of vitamin B6 and tablets added blood vitamin C combination to increase hemoglobin levels in pregnant women at Karang Anyar health center, Beringin Sub-district, Deli Serdang District in 2015. This study was a quasy experiment research with pretest posttest control group design. In this study used two groups of treatment, namely: group A tablet supplementation combined blood vitamin B6, group B administration of tablets plus blood combination of vitamin C. Samples in this study were 62 trimester pregnant women as many as 62 people divided into 2 groups. Data analysis using t-test. There was a difference of hemoglobin group A with group B with p value $0.273 > 0.05$ and $0.007 < 0.005$. Given a significant difference between group A and group B then all pregnant women in consuming tablets plus blood should be accompanied by consumption of vitamin C to help the absorption of iron optimally.

Keywords: Hemoglobin levels, Pregnant women

INTRODUCTION

Background

The incidence of anemia in pregnancy in Indonesia is quite high. Based on the latest data from Riskesdas 2013 there are 37.1% of pregnant women with anemia, ie pregnant women with Hb levels less than 11.0 grams / dl, with a proportion that is not much different between urban areas (36 , 4%) with rural (37.8%)⁽¹⁾. While the incidence of maternal anemia in Deli Serdang district is also not much different from the national rate of 33.0%⁽²⁾. This condition is a challenge so that the proportion of anemia in pregnant women can be lowered. The high anemia in pregnant women has a negative impact on the mother and the fetus. In the first trimester (antepartum bleeding, premature birth, fetus born with anemia, birth weight) low, high-birth deliveries, tired mothers), when inpartu (primary and secondary disruption, fatigue, high activity delivery), postpartum (difficult to heal, easy puerperalis febris, uterine involution disturbance, high maternal mortality resulting from bleeding, puerperalis infection).

Treatment of anemia is done according to the type of anemia. From the data available most pregnant women suffer from iron deficiency anemia. This is in accordance with the theory that pregnant women tend to have anemia, because of blood dilution (hemodilution) with an increase in plasma volume of 30-40% and 19% hemoglobin⁽³⁾.

The government has conducted a program in the effort to overcome the anemia of nutrition, especially in pregnant women. One of the programs that has been implemented is through the provision of iron tablet supplementation. Supplementation of iron tablets is considered an effective way because its iron content is solid

and comes with folic acid which at once can prevent and cope with anemia due to deficiency of folic acid (Waryana, 2010). Currently the national program recommends a combination of 60 mg of iron and 50 nanograms of folic acid at least 90 tablets during pregnancy for anemia prophylaxis⁽³⁾.

Purpose

The purpose of the research was to know the effectiveness of added blood combination tablets giving of vitamin B6 and vitamin C to increase hemoglobin levels in pregnant women at Karang Anyar Health Center, Beringin Sub-district, Deli Serdang District in 2015.

METHODS

This research type was quasy experiment research with pretest postest control group design. In this study used two groups of treatment, namely: group A: Given of tablets plus blood combination of vitamin B6, group B: given of tablets plus blood combination of vitamin C. Time of giving of blood added combination tablets of vitamin B6 and vitamin C was every day for 3 months. This quasy experiment research aimed to analyze the effectiveness of added blood combination tablets of vitamin B6 and vitamin C to increase hemoglobin levels in pregnant women.

Population in this research was all pregnant woman in second trimester and domiciled in working area of community health center of Karang Anyar of Beringin subdistrict of Deli Serdang district. Determination of second trimester of pregnant women as a population with placental considerations has been formed completely and the physiological process of hemodilution.

The sample size in the study was determined by hypothesis testing for the proportion of a single population⁽⁴⁾. Based on the calculation results, the minimum sample size in this study were 62 second trimester pregnant women who will be divided into 2 groups determined by random, namely group A; given tablets of Vitamin B6 and group B : given Vitamin C. Sampling was selected by purposive sampling method that based on considerations of the researchers, based on the characteristics of the population that has been known previously⁽⁵⁾. The criteria of sampling in this research were:

- 1) Inclusion Criteria
 - (a) Second trimester pregnant women
 - (b) Respondents are conscious
 - (c) Respondents are willing to be interviewed
- 2) Exclusion Criteria
 - (a) Respondents are unwilling to be interviewed

The categorical data was presented in the form of frequency and percentage⁽⁶⁾, whereas numerical data was presented in form of mean and standard deviation⁽⁷⁾. Differences in hemoglobin levels from both groups were analyzed using T-test.

RESULTS

Table 1. Distribution of respondents age and age of pregnancy

No	Mother age with combination of vitamin B6	f	%	Mother age with combination of vitamin C	f	%
1	20-35 years	26	83.9	20-35 years	25	80.6
2	> 35 years	5	16.1	> 35 years	6	19.4
	Total	31	100.0	Total	31	100.0

No	Maternal pregnancy age with combination vitamin B6	f	%	Maternal pregnancy age with combination vitamin C	f	%
1	13-24 weeks	21	67.7	13-24 weeks	21	67.7
2	> 24 weeks	10	32.3	> 24 weeks	10	32.3

Table 2. Distribution of the effectiveness of blood plus combination tablets of vitamin B6

No	Blood plus tablet added combination of vitamin B6	f	%
1	Up	20	64.5
2	Down	11	35.5
	Total	31	100.0

To find out the effectiveness of added blood combination tablets of vitamin B6 to increase hemoglobin levels in pregnant women in the work area of Karang Anyar Health Center can be seen in Table 2. Based on the

table can be seen that the effectiveness of vitamin B6 combined tablet supplementation to increase hemoglobin levels in pregnant women more HB levels increased (64.5%).

Table 3. Distribution effectiveness of blood plus tablets combination of vitamin C

No	Blood plus tablet added combination of vitamin C	f	%
1	Up	22	71.0
2	Down	9	29.0
Total		31	100.0

To know the effectiveness of giving tablets added combination blood vitamin C to increase hemoglobin levels in pregnant women in work area of KarangAnyar Health Center can be seen in Table 3. Based on the table can be seen that the effectiveness of tablets added blood combination of vitamin C to increase hemoglobin levels in pregnant women more with HB levels increased (71.0%).

For the mean of hemoglobin levels in pregnant women pre test and post test tablets added blood combination of vitamin B6 and vitamin C can be seen in Table 4. Based on the table can be seen that the mean of hemoglobin levels in pregnant women after the provision of vitamin B6 combined tablets increased from 11.725 to 11.974, whereas after the provision of tablets plus blood combination of vitamins C decreased from 12.106 to 11.467, this situation occurs there are some pregnant women after consuming vitamin C decreased hemoglobin level.

Table 4. Mean of hemoglobin levels in pregnant women pre test and post test blood plus tablets added combination of vitamin B6 and C

No	Mean of hemoglobin levels in pregnant women	Pre Test	Post Test
1	Fe + Vitamin B6	11.725	11.974
2	Fe + Vitamin C	12.106	11.467
Total		31	100.0

To analyze the effectiveness of tablets added vitamin A combined vitamin B6 to increase hemoglobin levels in pregnant women can be seen in Table 5. Based on the table can be seen that the results of t-statistical test paired pairs indicate that the value obtained $p = 0.273 < 0.05$ then it can be concluded there is no effectiveness of tablets added vitamin B6 combination of blood to increase hemoglobin levels in pregnant women.

Table 5. Effectiveness of Blood Plus Tablets Combination of Vitamin B6 to Increase Hemoglobin Level In Pregnant Women

No	Variabel	Paired Differences					t	Df	Sig. (2-tailed)
		Mean	Std. Deviator	Std. Error Mean	95% CI of the Difference				
					Lower	Upper			
1	Fe + Vit B6 before - Fe + Vit B6 after	16.129	80.431	14.446	-13.373	45.631	1.117	30	0.273

To analyze the effectiveness of tablets added vitamin C combined blood to increase hemoglobin levels in pregnant women can be seen in Table 6. Based on the table can be seen that the results of t-statistical test paired pairs show that the value obtained $p = 0.007 < 0.05$ then it can be concluded there is the effectiveness of giving vitamin plus vitamin C combined tablets to increase hemoglobin levels in pregnant women.

Table 6. Effectiveness of Blood Plus Tablets Combination of Vitamin B6 to Increase Hemoglobin Level In Pregnant Women

No	Variabel	Paired Differences					t	Df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% CI of the Difference				
					Lower	Upper			
1	Fe + Vit C before - Fe + Vit C after	32.290	61.614	11.066	9.690	54.891	2.918	30	0.007

DISCUSSION

Effectiveness of Blood Plus Tablets Combination of Vitamin B6 to Increase Hemoglobin Level In Pregnant Women

The result of the research showed that from p-test of t-test paired p value 0.273, it can be concluded that there is no effectiveness of giving vitamin B6 combination tablets added to the increase of hemoglobin level in

pregnant women in work area of Karang Anyar Health Center, Beringin Sub-district, Deli Serdang District 2015. Referring to the results of the test can be explained increasingly plus the combination of vitamin B6 does not increase the effectiveness of raising HB levels of pregnant women. Provision of added vitamin B6 combination tablets to elevated levels of hemoglobin in pregnant women is not unimportant, but in this study showed not very effective in increasing hemoglobin levels in pregnant women, there may be other factors more dominant to increase hemoglobin levels. Vitamin B6 is also important in pregnant women because vitamin B6 plays a major role in the coordination of the body's metabolic processes. Overall ensures normal functioning of the nervous system, hormonal regulation, tissue repair, cell growth, and the formation of red blood cells, nucleic acids and amino acids.

This study is incompatible with Hisano et al. (2009) research showing that vitamin B6 deficiency is one of the causes of anemia in pregnancy. From the results obtained found that anemia improved with treatment of vitamin B6 (pyridoxine hydrochloride) with a daily dose of 75 mg⁽⁸⁾.

Effectiveness of Blood Plus Tablet Combination of Vitamin C to Increase Hemoglobin Level in Pregnant Women

The result of this research showed that from p value = 0.007, it can be concluded that there is effectivity of vitamin C-added combination tablets to increase hemoglobin level in pregnant women in working area of Karang Anyar Health Center, Beringin Sub-district, Deli Serdang District 2015. Referring to the test results can be explained increasingly combined with the combination of vitamin C will increase the effectiveness of raising HB levels of pregnant women. Provision of tablets plus combination blood vitamin C to increase levels of hemoglobin in pregnant women is important, because in this study showed so effectively increase levels of hemoglobin in pregnant women, Vitamin C has a very important role in iron absorption, especially from non-hem iron found in many foods vegetable. The absorption of iron in the form of nonhem increases fourfold when combined with vitamin C.

According to Almatier that vitamin C acts as a powerful enhancer in reducing ferric ions to ferrous ions, making them easily absorbed in higher pH in the duodenum and small intestine. Foodstuffs containing iron hem that can be absorbed as much as 37.0% while non-hemite group of foods only 5.0% can be absorbed by the body. This situation proves that vitamin C has a very important role in the absorption of iron, especially from non-hem iron.

CONCLUSIONS

1. There is no effectiveness of tablets added blood combination vitamin B6 to increase hemoglobin levels in pregnant women in the work area of Karang Anyar Health Center, Beringin Sub-district, Deli Serdang District in 2015.
2. There is effectiveness of giving tablets added vitamin C combination of combination against an increase in hemoglobin levels in pregnant women in the work area of Karang Anyar Health Center, Beringin Sub-district, Deli Serdang District in 2015.
3. To increase hemoglobin levels in pregnant women between the provision of tablets plus blood vitamin B6 combination with vitamin C is the most effective is the provision of added tablets of blood with a combination of vitamin C .

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