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Supplementation of eel sauge (monopterus albus) on the level of hemoglobin post-operating sesar with anemia

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ABSTRACT

Background

Postpartum anemia is a medical condition where the number of red blood cells or hemoglobin is less than 12 gr / dl. One of the causes of postpartum anemia is iron deficiency anemia because of bleeding during labor. One of the government programs for treating anemia is by giving Blood Add Tablets (TTD) and providing food supplementation. The nutritional content of 100 grams of eel is calories (303 kcal), protein (14 g), fat (27 g), carbohydrates (0 g), phosphorus (200 g), calcium (20 g), iron (20 g), vitamin A (1600 SI), vitamin B (0.1 mg), vitamin C (2 mg), water (58 g). Sausage is one of the food products that is currently popular with the public and easy to consume.

Objective

To prove the effect of eel sausage supplementation on postoperative hemoglobin levels with anemia.

Methods

Quasy Experiment, Purposive Random Sampling, Pre Post Control Group Design. The subjects of the study were post-cesarean section with anemia, 7-11 gr / dl Hb, no eel allergy, 32 respondents divided into 2 groups, intervention 16 respondents, control 16 respondents. The intervention group was given 35 gr eel sausage, Fe 60 mg tablets and vitamin C 100 mg 1x / day for 7 days while the control group was given Fe 60 mg tablets and vitamin C 100 mg 1x / day for 7 days. Hb was measured by Cyanmethaemoglobin. Hypothesis testing of T berpasangan, Wilcoxon Rank and Mann Whitney U Test.

Results

There was a significant difference in mean hemoglobin levels after cesarean section with anemia before and after eel sausage supplementation, Fe 60 mg tablets and vitamin C 100 mg 1x / day for 7 days, before treatment 9,450 (0.92) gr / dl after administration treatment of 10,900 (1.08) gr / dl with an average difference of 1,450 (0.63) gr / dl, p value = 0.001. There was a significant difference in mean hemoglobin levels before and after administration of Fe 60 mg tablets and vitamin C 100 mg 1x / day for 7 days, before being treated 10,425 (0.75) gr / dl after treatment was given 10,519 (0.73) gr / dl with a mean difference of 0.094 (0.77) gr / dl, p value = 0.002. There was a significant difference in mean hemoglobin level after cesarean section with anemia after being given Fe 60 mg tablets and vitamin C 100 mg with 35 gr eel sausage supplementation compared to without eel sausage supplementation, the mean difference was 1.356 gr / dl p value = 0.001

Conclusion
Eel sausage supplementation effectively increases hemoglobin levels after cesarean section with anemia.
Suggestion
After a cesarean section, the hospital can use eel sausage supplementation to increase hemoglobin levels.
Keywords: Eel Sausage, Post-Caesarean Anemia, Hemoglobin Level

PRELIMINARY

Postpartum Anemia is a medical condition in which the number of red blood cells or hemoglobin less than 12 g / dl [1]. Anemia can be caused by the condition of the body need iron in high quantities, such as during pregnancy, lactation, infancy children and infants, as well as puberty or when the body mass loss of blood such as during menstruation, childbirth and in patients with hemorrhoids and hookworm [2]. They are on a diet or poor diet are also susceptible to anemia [1, 3].

Anemia in postpartum period is generally about 10% to 22% occur in women from poor families [4,5]. Factors affecting puerperal anemia include delivery by bleeding, pregnant women with anemia, poor nutrition, disease viruses and bacteria [5]. Anemia during childbirth is a continuation rather than suffered anemia during pregnancy, which led to complaints to the mother and reduce the percentage of work, both in everyday housework or in caring for the baby [2]. Effect of anemia in postpartum period is the occurrence of uterine subinvolusio which can lead to postpartum hemorrhage, puerperal infection makes it easy, convenient expenditures reduced milk and mammary infection [3, 6]. In puerperal anemia can cause sudden cordis decompensasi after childbirth and uterine contractions are inadequate because not enough blood to deliver oxygen to the uterus [3, 6].

According to the Indonesian Demographic and Health Survey (IDHS) 2017 4295 maternal mortality rate reached 22.1% causes include hypertension, hemorrhage 27.1% and others 30.8% [7]. The prevalence of anemia is estimated to 9% in developed countries, while in developing countries the prevalence is 43% [7]. According to data Riskesdas 2018, the incidence of anemia in the age group 15-24 84.6% 25-34 33.7%, 33.6% aged 35-44 and 28% aged 45-54 [7]. There was an increase in the proportion of pregnant women with anemia in 2013 37.1% and in 2018 48.9% [7]. Pregnant women with anemia will increase the prevalence of anemia during childbirth. While the number of maternal deaths in Central Java province in 2017 as many as 475 cases, amounting to 60% of maternal deaths occur in the postpartum period, amounting to 26.32% during pregnancy and amounted to 13.68% at the time of delivery [8].

Measures cesarean delivery is a surgical procedure that uses the uterine incision through the abdominal wall of the mother to deliver the baby. Indications of this action is that if vaginal delivery can be harmful to the baby or mother [7]. Increased cesarean surgery in the last 10 years is by IDHS 2007 figures cesarean delivery by 7% while the 2017 figure IDHS delivery by cesarean section at 17%, amounting to 7% of the implemented in a planned cesarean delivery [9]. Organizatin World Health Organization (WHO) establishes indicators cesarean delivery with 5-15% for each country, if not as an indication of cesarean surgery can increase the risk of morbidity and mortality in mothers and babies [10].

This increase in the incidence of cesarean delivery was associated with increased incidence of postpartum hemorrhage [11]. Therefore, patients who gave birth by Caesarean section have a higher risk of experiencing postpartum hemorrhage [12]. Intraoperative bleeding as a result of these actions is estimated at about 500 ml to more than 1000 milliliters [13].

Cesarean delivery standards set by caesarean section because often lead to complications such as bleeding.[13] The occurrence of postoperative bleeding cesarean increases the risk of post partum anemia compared with vaginal delivery [11]. In developing countries where labor is the first cause bleeding to maternal mortality. The risk factors that could potentially cause bleeding when blood vessels such as caesarean section are disconnected and open during operation, atonic uterus and bleeding at the site of the placenta is

attached.[15] Anemia can be caused by childbirth period of anemia in pregnancy

Iron deficiency anemia is one type of anemia due to iron deficiency in the body necessary for the synthesis of hemoglobin [19]. Normal human body needs iron within about 26 mg per day, this is necessary for the formation of red blood cells [20]. The amount of iron absorbed by the body daily 1 mg, equivalent to 10-20 mg of iron in the diet [20]. In fulfillment of iron, postpartum mothers consume serendipitous add iron.

Hemoglobin is the red pigment protein contained within red blood cells and the function carries oxygen from the lungs to be brought to the whole body [21]. Bond hemoglobin with oxygen is called oxyhemoglobin. Status hemoglobin consists of iron and protein globin. Iron-containing pigment heme and globin protein contains four amino acid chains consisting of chain alpha, beta, delta and gamma [21, 22].

Iron absorption is influenced by many factors, including vitamin C and animal protein [30]. The best sources of iron found in animal foods such as meat, chicken and fish [31]. One fish that contain high iron composition is eels.[32]Eel contains iron (20 mg / 100g), much higher iron in eggs and meat (2.8 mg / 100g). while the catfish (0.9 mg / 100g).[32] Consumption eels 135 grams each day meet the needs for iron, which is 25 mg per day.[32] Iron is necessary for the body to prevent anemia, which is characterized by an easy body weak, tired and lethargic [33]. Iron is useful for forming blood hemoglobin that carries oxygen to tissues throughout the body [34]. To facilitate the consumption of the meat eels can be used as raw material for the fish sausage supplementation.

Sausages are creamed meat mixed condiments or spices then put in a wrapper or sleeve wrapping elliptical or artificial, cooked or steamed.[35] In general, a sausage made from beef and chicken sausages but can also be made from fish meat for fish meat protein quality tends to be better than other meat proteins, in addition to the fat content in fish is lower than beef fat [36]. The high protein and low fat in fish can be an alternative to be used as the main ingredient of making sausage [36, 37].

High levels of glutamic acid in the eel eel make delicious and savory taste, so that in ripening processes do not need to add flavorings such as Monosodium Glutamate (MSG).

AIM

Proving supplementation eel sausage 35 grams, Fe tablets 60 mg and vitamin C 100 mg 1x / day for 7 days can increase postoperative hemoglobin levels of fault with anemia.

RESEARCH METHODS

This study research design quasy Experiment Design with pretest and posttest with control group design is used to determine the effect of consuming eel sausage against postoperative kadarhemoglobin fault with anemia. This study intervention group given 35 grams of sausage eel, Fe tablets 60 mg and vitamin C 100 mg 1x / day for 7 days. The control group was given 60 mg tablet Fe and vitamin C 100 mg gram 1x / day for 7 days. Measured levels of hemoglobin before (pretest) and after (posttest) intervention. The research data obtained from the results before and after a given treatment will be compared to see if there is an eel sausage influence on postoperative hemoglobin levels of fault with anemia.

DATA ANALYSIS

Data shown in the univariate analysis is the frequency distribution of the characteristics of the sample, the standard deviation, the average value, maximum and minimum values of vitamin A.

Bivariate analysis was conducted to determine whether, after intervention eel sausage administration can affect HB elevated levels in women with anemia post SC. To test the hypothesis on the group in pairs either the intervention group or the control group using paired t-test if normally distributed, and using Wilcoxon if the data distribution is not normal. To test the hypothesis test between groups used the unpaired t-test if normally distributed and used Mann Whitney if not normally distributed.

UNIVARIATE ANALYSIS

Table 1 Characteristics of Respondents

No.	Variables	Group Intervention (N = 16)	Control (N = 16)	p-Value *Levene test*
1	Age			.330
	The mean (SB)	28 (4.59)	25.75 (3.89)	
	median	27.0	26.0	
	Min Max ±	20 ± 35	20 ± 31	
2	parity			.410
	Primiparas	7 (43.8%)	9 (56.3%)	
	Multiparas	8 (50.0%)	7 (43.7%)	
	Grandemultipara	1 (6.3%)	-	
3	Last education			.684
	SD	2 (12.5%)	-	
	SMP	6 (37.5%)	2 (12.5%)	
	High School	6 (37.5%)	9 (56.3%)	
	Diploma	2 (12.5%)	3 (18.8%)	
	Bachelor and above	-	2 (12.5%)	
4	Work			0,829
	IRT	11 (68.8%)	8 (50.0%)	
	Merchant / service / entrepreneur	2 (12.4%)	4 (25.0%)	
	Private employees	3 (18.8%	4 (25.0%)	
5	Family income			0.325
	Below or equal to the MSE	10 (62.5%)	8 (50%)	
	above UMK	6 (37.5%)	8 (50%)	
6	protein intake			.410
	Less	12 (75%)	13 (81.3%)	
	Enough	4 (25%)	3 (18.7%)	
	More	-	-	
7	Iron intake			1,000
	Less	12 (75%)	12 (75%)	
	Enough	4 (25%)	4 (25%)	
	More	-	-	
8	Intake of vitamin C			1,000
	Less	14 (87.5%)	14 (87.5%)	
	Enough	2 (12.5%)	2 (12.5%)	
	More	-	-	

The mean (SB) at the age of 28 intervention group (4.59), while the control group mean (SB) 26 (3.89), with p = 0.330. Parity intervention group, primipara (43.8%), multiparous (50%), grandemultipara (6.3%) while the control group, primipara (56.3%), multiparous (43.7%), with p = 0.410. Last Education Elementary intervention group (12.5%), junior (37.5%), high school (37.5%), Diploma (12.5%) while the control group, junior high school (12.5%), high school (56 , 3%), Diploma (18.8%), Bachelor upwards (12.5%), with p = 0.684. IRT jobs in the intervention group (68.8%), merchant / service / entrepreneurs (12.4%), private sector employees (18.8%) while the control group, IRT (50%), merchant / service / self-employed (25%), private sector employees (25%), with p = 0.829. Family income MSE ≤ intervention group (62.5%),> UMK (37.5%) while the control group ≤ UMK (50%),> UMK (50%), with p = 0.325. Protein intake in

the intervention group, fewer (75%), sufficient (25%) while the control group, less (81.3%), sufficient (18.7%), with p = 0.410. Iron intake in the intervention group, fewer (75%), sufficient (25%) while the control group, fewer (75%), sufficient (25%), with p = 1.000.

Vitamin intake in the intervention group, less (87.5%), sufficient (12.5%) while the control group, less (87.5%), sufficient (12.5%), with p = 1.000. From the statistical results of the two groups was not significantly different, both groups equally. Characteristics of respondents are homogeneous. enough (25%) while the control group, fewer (75%), sufficient (25%), with p = 1.000. Vitamin intake in the intervention group, less (87.5%), sufficient (12.5%) while the control group, less (87.5%), sufficient (12.5%), with p = 1.000. From the statistical results of the two groups was not significantly different, both groups equally. Characteristics of respondents are homogeneous. enough (25%) while the control group, fewer (75%), sufficient (25%), with p = 1.000. Vitamin intake in the intervention group, less (87.5%), sufficient (12.5%) while the control group, less (87.5%), sufficient (12.5%), with p = 1.000. From the statistical results of the two groups was not significantly different, both groups equally. Characteristics of respondents are homogeneous.

BIVARIATE ANALYSIS

Table 2. Overview Increasing levels of HB On intervention group and control group before and after treatment.

Group	Levels of Serum Retinol				*P value*
	Before		After		
	Mean ± SD	Min-Max	Mean ± SD	Min-Max	
Intervention	9,450 + 0.92	8.0 to 11.0	10.900 + 1.08	09,2-13,1	0,001
Control	10.425 + 0.75	8.6 to 11.0	10 519 + 0.73	8.8 to 11.2	0,002

The intervention group mean hemoglobin levels before treatment 9.450 (0.92) g / dl, after getting treatment mean hemoglobin level of 10.900 (1.08) g / dl, the difference in hemoglobin levels increased levels of 1.450 g / dl p value of 0.001 (p <0 , 05). Based on the hypothesis test hemoglobin levels before and after treatment in the intervention group and significantly different, hemoglobin levels higher after treatment than before treatment.

The control group was given tablets Fe and vitamin C 100 mg, the mean hemoglobin levels before the intervention of 10.425 (0.75) g / dl, the mean hemoglobin levels after treatment 10.519 (0.73) g / dl, the average increase in hemoglobin concentration of 0.094 gr / dl p value of 0.002 (p <0.05). Based on the hypothesis test hemoglobin levels before and after treatment different and meaningful, hemoglobin levels higher after treatment than before treatment.

Table 3. Difference Hemoglobin On Intervention and Control Groups

variables	Value	result		
		Intervention	Control	*P value*
Difference in hemoglobin (g / dl) (ni = 16, nk = 16)	N	16	16	0,001
	mean	1,450	0.094	
	SD	0.63	0.07	
	Min	0.4	0.0	
	Max	2.2	0.2	

The mean difference in hemoglobin levels in the intervention group 1,450 (0.63) g / dl in the control group 0.094 (0.07) g / dl p value of 0.000 (p <0.05). Based on the hypothesis test the difference in the hemoglobin in the intervention and control groups are different and meaningful, the two groups differed, the

difference in hemoglobin levels higher intervention group than the control group.

Table 4. 2: Relative Risk Reduction, Risk Absolute Reductin and Number Needed to Treat Group Intervention and Control

HB	Group				Total	ARR value	RRR		NNT
	Intervention	%	Control	%			intervention	control	
Anemia	5	31.25%	10	62.5%	16	0.273	.515	1,889	3.66
not Anemia	11	68.75%	6	37.5%	16	(27.3%)			

ARR value of 0.273, this shows that the respondents are definitely not affected by anemia as much as 27.3% of the 32 respondents ie 8.736 or rounded to 9 respondents were certainly not affected by anemia. RRR value of 0.515 suggesting that the risk of the respondent in the intervention group anemic .515 fold compared to the control group. While the control group 1,889-fold risk of anemia compared to the intervention group. Value NNT (Number Needed To Treat) with results of 3.66 rounded to 4, it can be concluded that by providing an eel sausage supplementation of 35 grams in 4 respondents could prevent one respondent from anemia.

DISCUSSION

Supplementation sausage is the raw material eel fish eel eel eel which at 100 grams contained 20 mg of iron.[98]Eels are animal proteins that contain heme iron. The role of protein as a means of conveyance iron. There is no free iron in the body. Iron will combine with proteins to form tranferin. Tranferin will bring iron to the bone marrow to combine to form hemoglobin.

Besides the eel sausage contains vitamin A which can help heme iron can be dissolved in the intestinal mucosa, so that the iron can be absorbed. This proves that the administration of eel sausage combined with Fe tablets 60 mg and 100 mg of vitamin C can increase the bioavailability of iron derived from eel sausage and tablet Fe, as well as the presence of vitamin C increases iron absorption.

Animal protein, including fish can increase iron absorption. Especially muscle tissue protein digestion peptides containing cysteine may reduce Ferri (Fe 3+) into Ferro (Fe 2+), the form of Ferro (Fe 2+) is more soluble and two times more absorbable than Ferri (Fe 3+).

An increase in hemoglobin levels after intervention study conducted on school-age children in Haiti where an increase in hemoglobin concentration of 0.14 (1.28) g / dL in children who were given a fortified peanut butter snack bar, snack bar is made of flour beans that have a very low gluten levels, low sodium levels and high amounts of protein, fat, fiber, high Fe content and easily digestible carbohydrates.

Research in Ghana, children who get an extra (PMT) corn soy-enriched mixture of micronutrients showed a significant increase in Hb concentration is 0.6 g / dl higher than that did not get PMT.[100] Research on the effects of a boiled chicken egg consumption to increase hemoglobin levels II trimester pregnant women showed that consumption of boiled chicken eggs effective in increasing hemoglobin levels in the second trimester pregnant women (p value 0.001).[101]Nutrient content of eggs are rich in protein. The average protein content of eggs is about 7-8 grams, but it is a kind of micro mineral content is very important, namely iron, zinc and selenium.[101] Eggs contain good enough iron, the iron content of eggs is 1.04 mg and 0.58 mg whole egg yolk. [102] So with the consumption of chicken eggs boiled effectively increase hemoglobin levels.

The intake of food type with the addition of iron and vitamin C in pregnant and nursing mothers will affect hemoglobin levels.[105] This is consistent with research on seaweed Sargasum supplementation was found that the treatment group were given seaweed and tablet Fe and vitamin C for 7 days experienced an average increase in hemoglobin is higher that of 9.373 g / dl to 10.847 g / dl.[105]Iron absorption derived from seaweed Sargamssum higher than other sea grass at 22% although the form of iron that is in the development of seaweed is non-heme iron. That is because the vitamin C in Sargassum sp fairly high, with no evidence of phytate.

Based on research that has been done can be concluded supplementation eel sausage 35 grams, Fe tablets 60 mg and vitamin C 100 mg 1x / day for 7 days post-caesarean section with anemia effectively increase hemoglobin levels.

Supplementation of Fe 60 mg tablets and vitamin C 100 mg 1x / day for 7 days improved the mean hemoglobin levels after treatment in the control group, the hypothesis was accepted because hemoglobin levels after administration of iron tablet 60 mg and 100 mg of vitamin C higher than before giving treatment. Mean hemoglobin levels before administration Fe 60 mg tablets and 100 mg of vitamin C is 10.425 (0.75) g / dl and after treatment of their mean is 10.519 (0.73) g / dl. The hemoglobin level control group increased by 0.094 g / dl.

After administration of 60 mg Fe tablets and vitamin C 100 mg 37.5% of respondents in the category of anemia and 62.5% are not included in anemia. Based on the characteristics of the respondents were still anemic after the administration of Fe 60 mg tablets and 100 mg of vitamin C as much as 10 respondents have a lifespan of 20-35 years, with parity multipara, junior high school education, occupation and income Housewife ≤ UMK family.

Fe supplements are often used to combat anemia. The form of supplements used is Ferro salt, such as sulfate Ferro, Ferro and Ferro fumarate Gluconate. Shape Ferro (Fe 2+) more soluble and absorbable than the form of Ferric (Fe 3+).[25]Estimated ferrous salt absorption rate is 10-15%. Giving A supplements Fe in the control group that each tablet / capsule containing 60 mg of elemental iron and folic acid 0.4 mg. Their vitamin C 100 mg will increase the absorption of non-heme iron. There are two mechanisms of the effect of vitamin C on the absorption of non-heme iron. Firstly it prevents the formation of insoluble iron compound and can not be absorbed and the reduction of ferric (Fe 3+) to ferrous (Fe 2+).

The study, according to this study stated there is an increase maternal hemoglobin levels after administration of Tablet Add Blood (TTD) and vitamin C every day for 30 days of 1.09 g / dl. In research on granting Fe tablets 90 tablets by limiting the consumption of tea and coffee may reduce the number of pregnant women with anemia before and after the intervention.

Tablet Fe is one supplement that can help prevent anemia. Iron contained in the tablet Fe is a metallic element used by the body to make hemoglobin, iron deficiency can cause anemia is a decrease in red blood cells that circulate so that the amount of hemoglobin less than that required to meet the body's oxygen.[28] This is due to the circumstances of maternal postpartum condition is still recovering as condition before pregnancy, this is due to the birth process that much blood.

It is theorized that to increase hemoglobin levels can be performed by administering parenteral or oral iron preparations. In most cases, oral iron rectify the deficiency as quickly and as well as parenteral iron when iron absorption from the gastrointestinal tract under normal circumstances.

An innovation in addition supplied iron tablet were also given vitamin C.[28.78] Vitamin C has a very important role in the absorption of iron, especially of non-heme iron is found in plant foods.[29] Raw foods contain heme iron that can be absorbed is as much as 37% while foodstuffs containing non-heme iron is only 5% that can be absorbed by the body.[29] The absorption of non-heme iron can be improved by the presence of substances such as vitamin C absorption driving and other driving factors such as meat, chicken, fish

Based on this study it can be concluded that supplementation Fe tablets 60 mg and vitamin C 100 mg 1x / day for 7 days post-caesarean section with anemia may increase hemoglobin levels. Iron supplementation that has been a government program proven to increase hemoglobin levels.

Increased hemoglobin levels higher in the intervention group than the control group. After a given treatment hemoglobin level intervention group increased by an average of 1.450 g / dl, while the control group average increase of 0.094 g / dl, the difference in mean hemoglobin levels in the intervention group and a control group of 1,356 g / dl p = 0.001 , It showed that after administration of the treatment in the intervention group was higher than the control group.

Hemoglobin is a protein complex composed of iron-containing heme and globin with the interaction between heme and globin causes the hemoglobin (Hb) is irreversible for transporting oxygen. Iron along with the protein (globin) and protoporphyrin has an important role in the formation of hemoglobin, it will inhibit the formation of this hemoglobin takes approximately 7-10 days to become ripe and ready circulated throughout the body by red blood cells as hemoglobin is in the red blood cells then his life was the same as the life span of red blood cells, which is about 120 days.

This study is in line with about giving iron tablets along with other micro substances (multiple micronutrients) is more effective in improving iron status, compared to only provide iron supplementation in the form of a single dose.[112]Therefore, to increase the absorption of iron in the body, which is given iron supplementation needs to be combined with other micronutrients such as vitamin A and vitamin C. The iron with vitamin C to form soluble ascorbic complex and is easily absorbed by the organs in the human body. The conversion of non-heme iron in the form of ferric compounds into ferro etabolis will be even greater when the pH in the stomach more acidic. Vitamin C can increase the acidity that helps increase iron absorption by 30%.

This study is not consistent with research on the effect of consumption of sweet potato to the hemoglobin in third trimester pregnant women with the results of data analysis showed that with the Mann Whitney test with p = 0.078, which means there is no difference in hemoglobin levels of pregnant women before and after intervention in the intervention and control groups. The sweet potato has an iron content of 4 mg per 100 grams of sweet potato so that it can prevent anemia in the body. Giving tablet Fe in the control group showed a mean increase in hemoglobin level of 0.094 g / dl, so that the iron tablet consumption alone is not enough to prevent anemia or blood loss.

Results of the study showed no significant difference in hemoglobin levels of pregnant women before and after the intervention in the control group using only the consumption of iron tablet be caused by other factors which, according to previous research which states that anemia can be caused by nutritional factors during pregnancy the lack of demand, as well as factors inhibiting the absorption of iron tablets as a way to drink is wrong.

Based on the research results can be concluded granting sausage eel 35 grams, Fe tablets 60mg and vitamin C 100 mg 1x / day for 7 days a higher increase hemoglobin levels after cesarean section with anemia compared to administration Fe tablets 60 mg and vitamin C 100 mg.

Of the value of ARR (Absolute Risk Reduction) is obtained supplementation eel sausage 35 grams, Fe tablets 60 mg and vitamin C 100 can influence as much as 27.3% of the post-operative anemia fault. So 27.3% of the 32 respondents ie 8.736 or rounded to 9 respondents who definitely is not exposed to anemia, which concluded that after supplementation of 35 grams of sausage eel can overcome postoperative anemia fault as much as 9 respondents.

Of the value of RRR (Relative Risk Reduction) is obtained in the intervention group at risk for anemia as much as 0.515 times higher than the control group. Whereas in the control group at risk for anemia as much as 1,889 times compared to the intervention group. It can be concluded that the group that did not receive supplementation eel sausage 35 grams 3-fold

risk of anemia compared to the group receiving supplementation eel sausage 35 grams.

Of the value of NNT (Number Needed to Treat) obtained the value of 3.66 which is rounded up to 4, which means that only by giving supplementation eel sausage 35 grams to 4 respondents post-caesarean section with anemia can make one respondent becomes anemic. From the results of ARR, RRR and NNT eel sausage concluded that supplementation can improve postoperative hemoglobin levels of fault with anemia.

Based on research results eel sausage can increase postoperative hemoglobin levels of fault with anemia. For the mother of postoperative anemia as information that supplementation of 35 grams of sausage eel 1x / day for 7 days can increase postoperative hemoglobin levels of fault with anemia. Nutrition for hospital installations, eel sausage 35 grams can be of nutritional supplementation can increase hemoglobin levels for post-cesarean mothers with anemia, because anemia will slow down the operation wound and affect milk production. Expected in the next researcher to conduct research on eel sausage on hemoglobin levels by examining confounding factors such as the amount of spending and the factors lokhea enhancers and inhibitors and their effectiveness for postoperative wound healing and increased albumin.

CONCLUSION

Based on research on post-cesarean mothers with anemia as many as 32 respondents were divided into two groups, intervention and control groups. The intervention group received 35 grams of sausage eel, Fe tablets 60 mg and vitamin C 100 and a control group given 60 mg tablet Fe and vitamin C 100 mg 1x / day for 7 days, obtained conclusions:

1. Characteristics of respondents indicated an average age of respondents in the category of reproductive age (20-35 years), mostly primiparous, high school education, occupation and income Housewife ≤ MSEs. As for the food intake of the majority of respondents lacking in protein, vitamin C and iron.
2. Postoperative hemoglobin levels with anemia after cesarean given 35 grams of sausage eel, Fe tablets 60 mg and vitamin C 100 mg 1x / day for 7 days higher than before the treatment is given.
3. Postoperative hemoglobin levels with anemia after cesarean Fe given 60 mg tablets and vitamin C 100 mg 1x / day for 7 days higher than before the treatment is given.
4. Difference in hemoglobin levels before and after treatment in the intervention group was higher than the control group.

SUGGESTION

1. Health services

   Can provide information on nutrition services at the Hospital of supplementation sausage eel to increase hemoglobin levels of patients with anemia after cesarean section.
2. Community

   Eel sausage can be used as food supplementation for mothers postoperative anemia to increase hemoglobin levels.
3. For further research

   For further research needs to be researched about:
   a. Another nutrient content available on the eel that can increase levels of hemoglobin such as vitamin A and protein.
   b. Enhancers and inhibitors of factors that affect the absorption of iron.
   c. Nutritional status was assessed respondents.
   d. Total lokhea issued need to be observed.
   e. The control group was given a placebo.

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