The Relationship Between Adequacy of Animal Protein Consumption and Hemoglobin Levels for Pregnant Women

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ABSTRACT

Adequacy of nutrition is needed by a person from the womb to adulthood. Pregnant women are one of the groups of people who are prone to malnutrition. One of the nutritional problems in pregnant women is iron anemia (Fe). Pregnant women are said to be anemic if their Hb level is <11 g/dl, anemia can also occur due to an increased need for a person's body, for example during menstruation, pregnancy and childbirth, while the iron that enters is only a little, it is highly recommended to consume food that comes from animal protein such as fish. , meat, eggs and milk. examine the relationship between the adequacy of animal protein consumption on hemoglobin (Hb) levels of pregnant women in Puskesmas Johan Pahlawan Aceh Barat.Methods: This study is a quantitative study with a cross-sectional design. The population in this study were all pregnant women in the second and third trimesters who were recorded at Puskesmas Johan Pahlawan and Suak Ribee, West Aceh district in February 2020, totaling 165 people, the sampling technique used the purposive sampling method using the Slovin formula with a sample of 62 people. The results showed that there was a significant relationship between the consumption of animal protein intake and hemoglobin levels in pregnant women with a p value = 0.022. In conclusion, the HB level of pregnant women who consume enough animal protein is more normal than pregnant women who do not consume enough animal protein.

ARTICLE INFORMATION

Introduction

Quality humans are very much determined by nutritional status. Physical growth and intelligence development will be disrupted if they are malnourished. Since in the womb until adulthood, nutritional adequacy is very necessary (Yuliati et al., 2017). Pregnant mother is one of them community groups are prone to experiencing malnutrition, iron anemia is one of the nutritional problems in pregnant women (WHO, 2011; Ministry of Health, 2014). Anemia problem is a syringe in pregnant women. The prevalence of anemia increases in pregnancy from the second trimester to the third trimester by 2 to 3 times, the nutritional status of the mother is measured through the upper arm circumference (LILA) which

provides nutritional reserves and the nutritional status of the mother in pre-pregnancy (Karouglu et al, 2010). Pregnant women are said to be anemic if their Hb level is <11 gr / dl (WHO, 2011; Ministry of Health, 2014).

In general, food consumption is closely related to nutritional status, if the food consumed has good nutritional value, then the nutritional status is also good, on the other hand, if the food consumed lacks nutritional value, it can cause malnutrition (Yuliati et al, 2017). Therefore pregnant women must consume energy and consume sources of iron derived from animal protein, not below the nutritional adequacy rate (RDA) (Setyawati and Syauqi, 2014). The occurrence of anemia is because the level of Hb in the blood is lower than the normal limit, anemia can

also occur due to an increase in the need for a person's body, for example during menstruation, pregnancy and childbirth, while the iron that enters is only a little (Ministry of Health, 2013).

Protein is one of the nutrients needed by the body, especially for building cells and tissues, maintaining and maintaining the body's resistance, helping the formation of enzymes, hormones and various other biochemical substances, thus lack of protein intake will affect various body conditions needed to survive. healthy (Syatriani and Aryani, 2010). The need for protein during pregnancy will increase for fetal growth and to maintain maternal health. It is highly recommended to consume foods derived from animal protein such as fish, meat, eggs and milk (Kemenkes RI, 2014). Because animal protein contains 20 types of complete and easily digested amino acid elements to meet the nutritional needs of mothers during pregnancy (WHO / FAO / UNU, 2007; Elango, 2016).

The results of basic health research by the Ministry of Health Research and Development Agency of the Republic of Indonesia in 2013, the prevalence of anemia in the population of pregnant women was 37.1%, while the results of basic health research by the Indonesian Ministry of Health Research and Development Agency in 2018 the prevalence of anemia in the population of pregnant women increased, namely by 48.9%, Anemia cases of pregnant women in Aceh province in 2017 were 38.6%, (Aceh Provincial Health Office), while cases of anemia in pregnant women in West Aceh Regency in 2019 were 30.67%, Puskesmas Johan Pahlawan pregnant women suffering from anemia 36.54% , Puskesmas Suak Ribee amounted to 70.68%. (West Aceh Health Office, 2019).

A preliminary study conducted by researchers with interviews with 10 pregnant women in West Aceh district about the food they consume where only 4 pregnant women have enough animal protein, and 6 people do not have enough animal protein consumption, where ideally pregnant women should consume foods containing protein. adequate and balanced nutrition and must be twice or one portion more than the amount of food consumption of women before pregnancy (Almatsier, 2010; Ministry of Health, 2016). From the above background, the researcher is interested in making a study of the relationship between consumption of animal protein

and hemoglobin levels of pregnant women in Johan Pahlawan sub-district, West Aceh district.

Method
This research was conducted in two health centers all of these words must be replaced with puskesmas in Johan Pahlawan sub-district, West Aceh district including Johan Pahlawan and Suak Ribee Puskesmas. This research was conducted from April to June 2020. The equipment and materials used in this study were questionnaire form by means of interviews and direct observation with respondents. This research is a quantitative study with a cross sectional design. This study was to determine the closeness of the relationship between consumption of animal protein and hemoglobin levels of pregnant women.

The population in this study were all pregnant women in the second and third trimesters who were registered at the Johan Pahlawan Puskesmas and Puskesmas Suak Ribee, Johan Pahlawan District, West Aceh Regency in February 2020, totaling 165 people. The samples in the study were all pregnant women in the second and third trimesters who were recorded at the Johan Pahlawan Health Center and the Suak Ribee Health Center Puskesmas, Johan Pahlawan District, West Aceh Aceh Barat Regency in February 2020 using the Slovin formula (Notoatmodjo, 2010) so that a sample of 62 people was obtained. The inclusion criteria were all pregnant women in the second and third trimesters who were willing to be respondents, and did not suffer from blood disorders. The sampling technique used purposive sampling method, namely sampling based on special criteria. The data will be analyzed using correlation test and logistic regression.

Results
Univariate Analysis of Adequacy Level of Animal Protein Consumption
The results of the observation of the frequency distribution of the animal protein adequacy level of pregnant women were divided into two categories, namely mothers who had sufficient levels of animal protein adequacy and mothers who had sufficient levels of animal protein. Adequacy of animal protein is not sufficient. In Table 1, it can be seen that the distribution of respondents who do not consume enough animal protein intake is twice as large, namely 67.7% than the respondents who consume enough animal protein intake, which is only 32.3%.

Table 1.Frequency Distribution of Animal Protein Adequacy Variables

Adequate consumption of animal protein	Frequency	Percentage
Higher	20 Person	32,3
Lower	42 Person	67,7
Total	62 Person	100

Univariate Analysis of Hemoglobin Levels for Pregnant Women

The results of the observation of the frequency distribution of maternal hemoglobin levels were divided into two categories, namely mothers who had normal Hb levels and mothers who had abnormal Hb levels. In Table 2, it can be seen that the distribution of respondents with abnormal hemoglobin levels is higher, namely 51.6% of respondents whose hemoglobin levels are normal, namely 48.4%.

Table 2. Frequency Distribution of Respondents Hemoglobin Levels

Hemoglobin levels of pregnant women	Frequency	Percentage
Normal	30 Person	48,4
Abnormal	32 Person	51,6
Total	62 Person	100

Bivariate Analysis of Adequacy of Animal Protein Consumption with Hemoglobin Levels of Pregnant Women

The results of the observation of the frequency distribution of the adequacy of the consumption of animal protein intake of mothers who have sufficient animal protein intake and mothers who have insufficient animal protein intake to normal hemoglobin levels and abnormal hemoglobin levels. Based on Table 3, it shows that the proportion of respondents who consume enough animal protein intake has normal hemoglobin levels, which is 70% higher than respondents who do not consume enough animal protein intake, their hemoglobin levels are normal, namely 38.1%, while the proportion of respondents who do not consume enough animal protein intake hemoglobin levels abnormal, namely 61.9%, greater than the respondents who had sufficient consumption of animal protein intake, the hemoglobin level was not normal, namely 30%.

OR value = 3,792 which means that respondents who do not consume enough animal protein intake are almost 4 times more likely to have abnormal hemoglobin levels compared to respondents who consume enough animal protein intake and consume animal protein intake is a risk factor for abnormal hemoglobin levels, from the results of statistical tests with a 95% degree of confidence also illustrates that there is a close relationship between consumption of animal protein intake and Hb levels in pregnant women with p value = 0.022.

Table 3. The Relationship between Adequacy Level of Animal Protein Consumption and Hemoglobin Levels for Pregnant Women

Adequacy level of animal protein	hemoglobin levels of pregnant women						OR	P value
	Normal		Tidak normal		Total			
	F	%	F	%	F	%		
Lower	16	38,1	26	61,9	42	100	3,792	0,022
Higher	14	70	6	30	20	100		

Discussion
Univariate Analysis of Adequacy of Animal Protein Consumption
From 62 respondents, it is known that pregnant women who consume enough animal protein are 32.3%, this number is still very low. During pregnancy, the need for protein increases, this is due to the growth of the fetus (Elango and Ball, 2016). To maintain immunity, pregnant women are encouraged to consume food sources of animal protein, including fish, meat, eggs and milk (Ministry of Health, 2014). During pregnancy it is recommended to consume side dishes containing 40 grams of animal protein obtained from chicken, meat and fish (one of which) is equivalent to 1 medium piece of chicken or 2 small pieces of meat or 1/3 medium fish for 1 serving. food that is eaten per meal 1 plate of rice (200 grams) and it is recommended to eat 4-5 servings per day, it is

also recommended to consume 1 boiled egg equal to 55 grams and 1 to 2 glasses of pregnant milk equal to 100 to 200 grams per day (Almatsier , 2009; Sulistyoningsih, 2011: Ministry of Health, 2014).

This study is in line with the results of Azizah and Adriani (2017) where it was found that pregnant women who consumed enough protein were 18.2%. According to the assumptions of researchers in the Johan Pahlawan sub-district, West Aceh Regency, there are fewer pregnant women who consume enough animal protein because most pregnant women do not know the benefits of animal protein.

Univariate Analysis of Hemoglobin Levels for Pregnant Women
From 62 respondents, it is known that pregnant women who suffer from anemia with Hb levels <11g/dl are 51.6%. This illustrates Johan Pahlawan District, West Aceh Regency, pregnant women who suffer from anemia are still high. The negative impact of the high prevalence of anemia is the increase in mortality rates for mothers and children who are born. As a result of disruption in the growth of body cells and brain cells will affect the quality of human resources born as a whole (Ministry of Health, 2014).

This study supports the results obtained by Wiraprasidi et al (2017) where pregnant women who suffer from anemia with abnormal hemoglobin levels are found to be 94.1%. Previously, Sugiarsih and Wariyah (2013) also found that pregnant women suffering from anemia with abnormal hemoglobin levels were 54.6%. According to the assumptions of researchers in Johan Pahlawan sub-district, West Aceh Aceh Barat district, more pregnant women suffer from anemia with abnormal hemoglobin levels because most pregnant women do not consume enough iron (Fe) tablets and foods containing protein and nutrients that can prevent anemia.

Bivariate Analysis of Adequacy of Animal Protein Consumption with Hemoglobin Levels of Pregnant Women

This study is in line with the results of Yuliati et al. (2017) stated that there is a relationship between the protein adequacy rate and the hemoglobin level of pregnant women with a statistical test of p-value = 0.005. Previous research conducted by Nurhidayati and Hapsari (2014) also suggested that there was a significant relationship between the nutritional adequacy rate and the hemoglobin level of pregnant women with the statistical test of the value of Pvalue = 0,000. Previously, Syatriani and Aryani (2010) stated that there was a relationship between the protein adequacy rate and the incidence of anemia in pregnant women, the statistical test, the value of P-value = 0.000.

To achieve optimal maternal nutritional status, nutritional management of pregnant women must be carried out so that the mother is safe in carrying out her pregnancy and gives birth to healthy babies both physically and mentally. Pregnancy problems will occur if there are certain kinds of nutrients that are not sufficiently fulfilled (Proverawati & Asfuah, 2017). During pregnancy, the mother undergoes various physiological changes, protein plays an important role in the formation and maintenance of cells that support fetal growth and also plays a role in the growth of plasma and amniotic fluid (amniotic fluid). If the need for protein is insufficient, it will have an impact on the inhibition of placental growth.

Protein has a role in tissue formation and cell regeneration, especially for breast cells, uterus and plasma volume which increases by up to 50%. Protein can be a food reserve that is used for preparation for childbirth, the period after giving birth and during breastfeeding (Fikawati et al., 2014). The absorption of non-heme iron sources contained in plant foods is less than the heme iron sources contained in animal foods (Skolmowska and Glabska, 2019).

According to the assumptions of researchers, why the intake of animal protein has a relationship with Hb levels because the type of food sources of vegetable protein is consumed more often because the price is cheaper than protein derived from animal sources such as meat which contains lots of iron. Consuming adequate animal protein according to nutritional needs can increase the absorption of iron in the body, so that anemia can be prevented.

Conclusion
Based on the results of research conducted in the Johan Pahlawan Subdistrict, West Aceh Regency in 2020, it can be concluded that the HB level of pregnant women who consume enough animal protein is more normal than pregnant women who do not consume enough animal protein, so there is a relationship between the adequacy of animal protein

consumption and maternal hemoglobin levels. Pregnant.

Author Contribution and Competing Interest
The author's contribution to this research includes designing a research project, collecting data or analyzing results, being involved in the preparation or revision of scientific papers.

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