INTERNASIONAL CONFERENCE ON
MULTIDISCIPLINARY APPROACHES IN HEALTH SCIENCE
VOLUME 2, ISSN 3032-4408 (Online)
https://ejournal.poltekkes-denpasar.ac.id/index.php/icmahs

The Effectiveness of Ambon Banana and Avocado on Hemoglobine Levels In Pregnant Women With

Annie Cristyana Purba[1]
[1]Poltekkes Kemenkes Semarang
*Correspondence: anniepurba123@gmail.com

ABSTRACT

Background : Pregnancy is a period of change, adjustment, challenges and turning points in family life, and it deeply impacts every aspect of women's life.**Objective**: To determine the effectiveness of ambon banana and avocado on hemoglobine levels in pregnant women with anemia in puskesmas area pagerbarang. **Methods** :This quasi experiment research used the design of Two Pretest and Posttest With desaign with each 18 respondents for the ambon banan group and 18 respondent avocadogroup. The instrument used is easy toch GCHb, operational standards easy toch GCHb and observation sheet.The sample technique used is purposive sampling. **Result** : The results of the research shows that of p = 0,975 (p >0.05) which means that no difference in hemoglobin levels after being given Ambon banana and after avocado to pregnant women in the working area of Puskesmas Pagerbarang. **Conclusion**: The results of this study were there was no difference in hemoglobin levels after being given Ambon banana and after avocado to pregnant women in the working area of Puskesmas Pagerbarang. The results of this study can be used as input for the Public Health Center to provide counseling for pregnant women who come to the Puskesmas about the use of Ambon banana and avocado as an increase in hemoglobin levels in the body.

Key words: ambon banana, avocado, hemoglobin

Introduction

Pregnancy is a physiological condition that is the desire of every married couple. From every pregnancy, what is expected is the birth of a healthy and physically perfect baby with sufficient weight. The pregnancy period is one of the important phases in a child's growth because the prospective mother and the baby she is carrying need a lot of nutrition. Pregnancy is a period of change, adjustment, challenges and turning points in family life, and has a profound impact on every aspect of a woman's life.(Simanjuntak et al., 2009).Physiological and psychological changes in the mother's body occur during pregnancy. Physiological changes in the mother during pregnancy include estrogen and progesterone hormones, changes in the reproductive system, changes in other organ systems including the blood circulation system. During pregnancy, the mother's blood circulation is influenced by circulation to the placenta, the uterus which enlarges with enlarged blood vessels. During pregnancy, the mother's blood volume increases physiologically with liquefaction (hemodelution). Blood volume will increase by about 25% with a peak of 32 weeks of pregnancy. Hemodelution causes physiological anemia in pregnancy(Parulian et al., 2016).

Anemia is a condition in which the hemoglobin level in the blood is lower than normal. Most of the causes of anemia in Indonesia are iron deficiency from food eaten every day and are needed for the formation of hemoglobin. Iron deficiency in maternal pregnancy can cause disorders or obstacles to fetal growth, both body cells and brain cells. Nutritional anemia can cause fetal death in the womb, abortion, birth defects, Low Birth Weight (LBW), anemia in babies born. This causes maternal morbidity and mortality and perinatal mortality significantly higher. In pregnant women who suffer from severe anemia, it can increase the risk of maternal and infant morbidity and mortality, the possibility of giving birth to LBW and premature babies is also greater. For this reason, efforts need to be made to overcome the prevention of anemia in maternal pregnancy(Parulian et al., 2016).

Anemia will have a negative effect on pregnancy, including abortion, premature birth, fetal growth retardation in the womb, easy infection, threat of cord decompensation (Hb <6 g%), hydatidiform mole, hyperemesis gravidarum, Anterpartum Hemorrhage, Premature Rupture of Membranes (PROM). Dangers during labor include impaired contractions (pushing strength), the first stage can last a long time, and neglected labor occurs, the second stage lasts a long time so it can be tiring and often requires obstetric surgery, during the postpartum period there is uterine subinvolution which can cause postpartum hemorrhage, facilitate puerperium infection, reduced breast milk production, sudden cord decompensation after delivery, and breast infection occurs. Anemia is also dangerous for the fetus, which can reduce the body's metabolic ability so that it interferes with the growth and development of the fetus in the womb. As a result of anemia, disorders can occur in the form of abortion, intrauterine death, high prematurity, low birth weight, birth with anemia, birth defects can occur, babies are easily infected to perinatal death and low intelligence in babies(Parulian et al., 2016).

The prevalence of anemia in pregnant women worldwide in 2017 was 41.8%. The prevalence of anemia in pregnant women is estimated in Asia at 48.2%, Africa at 57.1%, America at 24.1%, and Europe at 25.1%. Based on the results of the 2018 Basic Health Research (Riskesdas), the prevalence of anemia in pregnant women in Indonesia was 37.1%, Central Java at 57.1% and Tegal district at 22%. The government has implemented a program to overcome anemia in pregnant women, namely by providing 90 Fe tablets to pregnant women during pregnancy with the aim of reducing the number of anemia in pregnant women, but the incidence of anemia is still high (Rahma Kusuma, 2016).

There are two efforts that can be made in preventing and overcoming anemia, namely pharmacological by consuming Fe tablets and non-pharmacological by consuming foods that contain vitamins and iron, such as meat, fish, green vegetables (spinach, broccoli, beans), fruits (Ambon bananas, avocados, raisins).

One of the non-pharmacologic therapies that can be consumed to prevent anemia is Ambon bananas. Consuming Ambon bananas can be a solution to anemia for pregnant women who experience it. Consuming two bananas a day is enough to meet the iron intake for anemia patients. Bananas are the best food because they contain vitamins needed by pregnant women. Bananas are enough to meet the iron intake of anemia patients. Bananas contain a lot of folic acid or vitamin B6 which is soluble in water, which is needed to make nucleic acid and hemoglobin in red blood cells. Bananas enriched with vitamin B6 can neutralize stomach acid and improve digestion. In addition, bananas also contain 467 mg of potassium, and pregnant women need 2000 mg of potassium every day. Leg cramps are one of the most unpleasant symptoms during pregnancy, can be relieved by increasing potassium intake. Consuming 2 bananas every day is very beneficial for pregnant women, its use is to help overcome anemia(Rahma Kusuma, 2016).

Vitamin C in Ambon bananas is also found in avocados. The role of vitamin C in the formation of erythrocytes is related to the function of vitamin C which accelerates the absorption of Fe minerals from the small intestine mucosa and moves them into the bloodstream to the bone marrow which is then used to form hemoglobin. Vitamin C plays a role in reducing ferric ions to ferrous ions in the small intestine (duodenum) so that they can be more easily absorbed. Absorption occurs mainly in the upper part of the small intestine with the help of special protein transporters, namely transferrin and ferritin. Fe minerals in the form of ferritin will precipitate at pH 7 in the small intestine, except in dissolved forms such as ferrous ions (Andina et al., 2018).

Based on research conducted (Rahma Kusuma, 2016), stated that there was an effect before and after giving Ambon bananas on increasing hemoglobin levels in pregnant women in the first trimester. Research conducted by (Hidayat, 2017)also showed that there was a positive effect of giving avocado juice for 14 days on increasing Hb levels and the number of erythrocytes.Research conducted by (Andina et al., 2018) also showed that there is a relationship between the consumption of Ambon bananas and increased hemoglobin levels in pregnant women with anemia.

According to preliminary study data conducted at the Pagerbarang Health Center from January to December 2019, there were 200 cases of anemia in pregnant women from 1130 target pregnant women (17.6%).

Efforts made by the health center to handle cases of anemia in pregnancy are providing Fe tablets, providing additional food, milk for pregnant women and providing advice to pregnant women to consume nutritious food. Based on the results of interviews conducted with 10 pregnant women with anemia, they said that they often complained of dizziness, fatigue, lethargy and weakness. The mother's efforts to overcome these complaints were to drink sweet tea, rest, drink milk and consume Fe tablets. The mother also said that every day she consumes green vegetables and fruits such as spinach, kale, papaya, and oranges. However, the mother also said that when taking Fe tablets she usually feels nauseous and constipated, so often the Fe tablets are not taken.

Based on the background above, the researcher is interested in conducting research on the effectiveness of Ambon bananas and avocados on hemoglobin levels in pregnant women with anemia in the Pagerbarang Health Center area.

Method

This type of research is a Quasy

Experiment with Two Group Pretest Postest design. The study was conducted in July 2020 at the Pagerbarang Health Center, Tegal Regency.

The sampling technique is Purposive sampling which is carried out by selecting subjects based on criteria that have been determined by researchers based on the limitations of characteristics and traits in the inclusion and exclusion criteria. The inclusion criteria are pregnant women with anemia, without high risk, gestational age 16-24 weeks and willing to be respondents and the exclusion criteria are pregnant women who have a history of blood disorders, complications and are not willing to be respondents.

The subjects of the study were 36 pregnant women in the working area of the Pagerbarang Health Center, Tegal Regency, who were divided into two groups, namely 18 subjects of the Ambon banana fruit group 200 g / day and 18 subjects of the avocado fruit group 200 g / day for 7 days

Hemoglobin level analysis was carried out at the Pagerbarang Health Center using easy touch. Analysis of the Ambon banana fruit group using the Wilcoxon Test and the avocado fruit group using the paired T Test.

Result

Table1. Hemoglobin levels before and after being given Ambon bananas to pregnant women with anemia

Hemo globin	n	Mean	SD	Min - Max	P-Value
Pre	18	9.90	0.53 45	8.8 – 10.0	0,000
Post	18	10.550	0.41 62	9.9- 11.0	

Hasil penelitian di dapatkan nilai p = 0,000 (p < 0,05) maka dapat disimpulkan bahwa ada perbedaan yang signifikan kadar hemoglobin sebelum dan sesudah diberi buah pisang ambon pada ibu hamil di Puskesmas Pagerbarang.

Table 2. Hemoglobin levels before and after being given avocado to pregnant women

Hemo globin	n	Mean	SD	Min - Max	P Value
Pre	18	9.289	0.60 67	7.9 - 10.0	0,000
Post	18	10.450	0.53 28	9.1 – 11.2	

Hasil penelitian di dapatkan nilai p = 0,000 (p < 0,05) maka dapat disimpulkan bahwa ada perbedaan yang signifikan kadar hemoglobin sebelum dan sesudah diberi buah alpukat pada ibu hamil di Puskesmas Pagerbarang

Discussion

Hemoglobin Levels of Pregnant Women Before and After Being Given Ambon Bananas

Based on the results of the study, it can be seen that the lowest hemoglobin levels before being given Ambon bananas were 8.8 g/dL and the highest were 10.0 g/dL. Meanwhile, the hemoglobin levels of pregnant women after being given Ambon bananas were the lowest at 9.9 g/dL and the highest at 11.0 g/dL, with a p value of 0.000. The data above shows an increase in hemoglobin levels after being given Ambon bananas.

Respondents often felt dizzy, weak and lethargic before eating Ambon bananas, but after being given Ambon bananas regularly for 7 days, respondents felt that their bodies did not tire easily and did not feel dizzy. The results of this study show the same results as the research conducted (Rahma Kusuma, 2016)at the Balowerti Health Center which stated that some respondents experienced an increase from mild anemia to no anemia and a small portion of respondents experienced an increase from moderate anemia to mild anemia. This

shows that there is an effect after consuming Ambon bananas compared to before consuming Ambon bananas on increasing hemoglobin levels in pregnant women.

Bananas are enriched with iron which is effective in controlling iron deficiency and almost all of it can be absorbed by the body. Ambon bananas also contain vitamin C which can help increase iron absorption. Vitamin C increases absorption because it reduces iron in the form of ferri to ferro. Vitamin C increases iron absorption from food through the formation of a ferro ascorbate complex. The combination of 200 mg of ascorbic acid with iron salts can increase iron absorption by 25% - 50%(Mahardika et al., 2016).

Hemoglobin Levels of Pregnant Women Before and After Being Given Avocado

The results of the study showed that the lowest hemoglobin levels of pregnant women before being given avocado were 7.9 g/dL and the highest were 10.0 g/dL. While the lowest hemoglobin levels of pregnant women after being given avocado were 9.1 g/dL and the highest were 11.2 g/dL, and the p value was 0.000. The data above also show an increase in hemoglobin levels in pregnant women after being given avocado.

Before being given avocados, respondents felt easily tired, dizzy, weak and had blurred vision, then after being given avocados regularly for 7 days, respondents felt their bodies were better, not dizzy and not easily tired. The results of this study showed the same results as the study conducted by (Hidayat, 2017)about the effect of avocado juice on hemoglobin and erythrocyte levels of pregnant women at the Sindang Health Center, Indramayu Regency, which showed that in the intervention group and the control group, the average hemoglobin and erythrocyte levels were measured before the intervention, the seventh day of the intervention, and the fourteenth day of the intervention. From these measurements, it was found that in the intervention group there was a significant difference in the average Hb and erythrocyte levels between the measurements before the intervention (pre) and the measurements on the fourteenth day of the intervention. The increase in Hb was 8.77% and erythrocytes was 7.95%. This shows that routinely consuming avocado juice for 14 days can help increase hemoglobin and erythrocyte levels. In the control group, there was no difference in the average Hb and erythrocyte levels between the measurements before the intervention and the measurements on the fourteenth day, but there was a significant difference in the measurements before the intervention and the measurements on the seventh day (Hidayat, 2017).

Avocados contain iron which has benefits including lowering cholesterol levels, balancing blood sugar, strengthening kidney and bone function, improving brain function, as a blood enhancer, and reducing the risk of cancer. The iron and copper contained in avocados are very helpful in the formation of red blood cells. Avocados can also monitor heart rate and maintain the body's nerve function so that it remains awake. The natural nutritional content of avocados stimulates the body to produce blood platelets according to the amount needed by the body.

Conclusion

Consumptionof bananas and avocados for 7 days can increase hemoglobin levels in pregnant women with anemia.

Conflict Of Interest

The authors declare that they have no conflict of interest.

Acknowledgement

The author would like to express his thanks to Pagerbarang Community Health Center, Tegal Regency

References

Andina, F. D., Nirmasari, C., & Widayati, W. (2018). Perbedaan Kadar Hb Sebelum dan Sesudah Pemberian Pisang Ambon pada Ibu Hamil dengan Anemia Di Wilayah Kerja Puskesmas Sumowono. *Indonesian Journal of Midwifery*, *1*(September), 78–84. https://doi.org/https://doi.org/10.35473/ijm.v1i2.104

Hidayat, F. (2017). *Pengaruh Pemberian Jus Alpukat (Persea americana mill) Terhadap peningkatan Kadar hemoglobin Ibu Hamil TM II Di Puskesmas Sindang Kabupaten Indramayu*. *7*(2), 93–99.

Mahardika, N. P., Zuraida, R., Kedokteran, F., Lampung, U., Gizi, B., Kedokteran, F., & Lampung, U. (2016). *Vitamin C pada Pisang Ambon (Musa paradisiaca S .) dan Anemia Defisiensi Besi Vitamin C in Pisang Ambon (Musaparadisiaca S .) and Iron Deficiency Anemia*. *5*, 124–127.

Parulian, I., Roosleyn, T., Tinggi, S., Kesehatan, I., & Widya, J. I. (2016). *Strategi dalam penanggulangan pencegahan anemia pada kehamilan*. *3*.

Rahma Kusuma, D. (2016). Pengaruh Konsumsi Buah Pisang Ambon Terhadap Anemia Pada Ibu Hamil Trimester I. *Jurnal IImu Kesehatan MAKIA*, *4*(1).

Simanjuntak, N. A., Anemia, H., Ibu, P., Dengan, H., Bayi, K., Lahir, B., Badan, D., Rumah, P., Umum, S., Kabupaten, R., Batu, L., & Repository, U. S. U. (2009). *Nelly Agustini Simanjuntak : Hubungan Anemia Pada Ibu Hamil Dengan Kejadian Bayi Berat Lahir Rendah (BBLR) Di Badan Pengelola Rumah Sakit Umum (BPRSU) Rantauprapat Kabupaten Labuhan Batu Tahun 2008, 2009. USU Repository © 2009*.