**The Use of Corn in Trimester I Pregnant Women Against Complaints of Trimester I**

**Pregnant Women in Lohia District, Muna Regency, Southeast Sulawesi in 2020**

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**Abstract**

*Hemoglobin (Hb) is a protein molecule containing iron from red blood cells and myoglobin in the muscles which functions to carry oxygen from the lungs to all body tissues and brings back carbon dioxide from all body tissues to the lungs to be excreted from the body. Hb level during pregnancy is very important because it affects the condition of the mother and the fetus. If the Hb level of pregnant women is low it can cause anemia. Symptoms of anemia are dizziness, pallor, nausea, vomiting, fatigue, and decreased appetite. One of the foods that are good for pregnant women to consume is corn. Corn contains vitamins B1, B6, B9, B12, Biotin and pantothenic acid to metabolize carbohydrates, coenzymes, increase endurance, overcome nausea and vomiting, Hb formation and prevent anemia. This study aims to determine the benefits of maize in trimester I pregnant women against complaints of pregnant women in trimester I. Quasi-experimental research using the pretest-postest two group design approach in Lohia Subdistrict, Muna Regency, Southeast Sulawesi in 2020 with simple random sampling and the subjects in this study respectively 20 interventions and 20 controls. The data collection technique is done by using an observation sheet to record the Hb measurement results. Sample analysis test T-test was used to determine the benefits of corn. The results showed that in the first trimester of pregnant women, there was a significant increase in Hb levels after being given corn (Zea Mays). P value = 0.000 <α = 0.05. The conclusion is that there are benefits of giving corn to trimester I pregnant women against complaints of trimester I pregnant women.*

*Keywords: key1; Corn (zea mays); password\_key2; first trimester of pregnancy; password\_key3; Hemoglobin (Hb)*

**INTRODUCTION**

Pregnancy is a union of spermatozoa and ovum. Intra-uterine fetal growth and development begins from conception and ends until the onset of labor. Pregnancy occurs for approximately 9 months (1). The trimester of pregnancy is divided into three, namely: the first trimester (between 0 and 12 weeks), the second trimester (between 13 and 27 weeks), and the third trimester (between 28 and 40 weeks (2).

In the first trimester all fetal organs develop by the end of the third month. During this time it is very important to maintain a healthy diet, including adding sufficient amounts of folic acid to help prevent neural tube defects in the fetus. During the first trimester, the risk of miscarriage is quite high. Therefore, pregnant women must maintain good body condition and vitality. Based on the standard of midwifery service during Antenatal Care (ANC), a pregnant woman is recommended to do ANC examination 3 times (1 doctor's examination to screen the complete maternal health).

during pregnancy a woman has an increase in blood plasma up to 30%, blood cells 18% but Hb only increases by 19% as a result, the frequency of anemia in pregnancy is quite high (3). Anemia in pregnancy is a condition of mothers with hemoglobin levels below 11 g% in the trimester I and III or Hb levels <10.5 g% in the second trimester (4).

Anemia during pregnancy consists of three, namely iron deficiency anemia which arises due to iron deficiency so that the formation of red blood cells and other functions in the body is disrupted (5). Folic acid deficiency anemia (megaloblastic) is anemia caused by a lack of folic acid which functions in the maturation of red blood cells. B12 deficiency anemia is B12 in the blood that functions as the formation of red blood cells (6).

The most common cause of anemia is lack of nutrients needed for the synthesis of erythrosis, especially iron, folic acid and vitamin B12. Anemia is caused by the lack of nutrients in the body that play a role in the formation of red blood cells. Substances that play a role in hemopoesis, namely protein, vitamins (folic acid, B12, C AND E) and minerals (Fe and Cu). Of the various causes the most prominent that cause hemopoesis are Fe, Folic Acid and B12. . Common symptoms of anemia are pale, lethargic, tired quickly, and dizzy eyes (7).

Hemoglobin (Hb) is a protein molecule containing iron from red blood cells and myoglobin in muscles. Hb in red blood cells functions to carry oxygen from the lungs to all body tissues and bring back carbon dioxide from all body tissues to the lungs to be excreted from the body (8). Micro impacts that arise due to lack of hemoglobin levels: fatigue, laziness and weakness, shortness of breath, palpitations, nausea, pale face, decreased immune system power, pale eyes, headaches and fainting (9)

Eating healthy foods is very important during pregnancy, both for the health of the mother itself and for the fetus. One of the foods that are good for pregnant women to eat is corn. Corn is the 3rd largest food produced in Indonesia. Adequacy of food nutrition is one of the most important factors in developing the quality of human resources. This is a key factor in the successful development of a nation. Nutrition greatly affects one's intelligence and productivity. In general, the majority of Indonesian farmers still rely on staple food for the most part. The staple foods produced are rice, tubers (especially cassava and sweet potato), sago and corn. The use is based on availability in the area which is the result of family farming and develops into eating habits in an area. (8)

Apart from being a source of carbohydrates, corn is also an important source of protein in the menu of Indonesian society. Corn contains calories, water, protein, carbohydrates, sugar, fiber, fat, omega-3, omega-6, folate, vitamins and minerals such as zinc and magnesium. The content of corn which plays an important role during pregnancy, namely vitamin B1 (thiamine) main function as carbohydrate metabolism, early symptoms of thiamine deficiency, namely decreased appetite, constipation and fatigue. Biotin functions as a coenzyme, a symptom of biotin deficiency, namely feeling tired, lack of appetite and vomiting. Pantothenic acid functions as coenzyme A, an early symptom of pantothenic acid deficiency, namely vomiting and feeling tired. Vitamin B6 functions to increase endurance, overcome nausea and vomiting, symptoms of vitamin B6 deficiency, namely weakness and insomnia.

One of the further effects of vitamin B6 deficiency, namely anemia. Vitamin B12 functions as a builder of red blood cells, one of the symptoms of vitamin B6 deficiency, namely anemia due to folate deficiency. Iron functions as the formation of blood cells. Iron deficiency generally causes pallor, weakness, fatigue, dizziness, lack of appetite, decreased fitness and impaired wound healing. If a deficiency of vitamins B1, B6, B9, B12, Biotin and pantothenic acid can cause complaints in the first trimester of pregnancy.

The prevalence of anemia in pregnant women in Southeast Sulawesi in 2018 was 10.5%, where the largest prevalence was in Muna district at 40.69%. Based on a preliminary study conducted in the working area of ​​Puskemas Waara, Lohia District, Muna Regency, 12 pregnant women consume corn once a month while the number of maize in Lohia Subdistrict is abundant but chooses to sell to the nearest traditional market on the grounds that it is more economically profitable.

From the above background, the researcher is interested in knowing the benefits of giving corn in the first trimester of pregnancy to Complaints of I Trimester Pregnant Women. The problems in this study are; consumption of maize in pregnancy in trimester The quantity of Complaints for trimester I pregnant women, in this case the levels (HB) of pregnant women in trimester I in Lohia District, Muna Regency, Southeast Sulawesi in 2020.

**MATERIALS AND METHODS**

This research is a type of quantitative research. This research method is quasi-experimental research with a pretest-postest two group design approach for the period of February 24 2020-June 2020 in Lohia Subdistrict, Muna Regency, Southeast Sulawesi, 2020. The purpose of this study was to determine the use of maize in trimester pregnant women. I to complaints of trimester pregnant women. The population in this study were all trimester I pregnant women in the working area of ​​Puskesmas Waara, Lohia District, Muna Regency. The sampling technique was simple random sampling, totaling 40 pregnant women, divided into the intervention group of 20 pregnant women and a control group of 20 pregnant women. The data collection technique is done by using an observation sheet to record the Hb measurement results. Data analysis used the Independent T-Test with 95% confidence using the SPSS program.

**RESULTS AND DISCUSSION**

From the results of data analysis performed using the Sample T-test statistical test, obtained the value of P value = 0.000 Sig (2-tailed), which means that Ho is rejected and Ha is accepted, which means that there is a benefit of giving corn for pregnant women in trimester 1 to complaints of pregnant women in trimester 1 in Lohia District, Muna Regency.

**Respondent Characteristics**

**Table 1. Distribution of First Trimester Pregnant Women by Age**

|  |  |  |
| --- | --- | --- |
| **USIA** | **F** | **(%)** |
| ≤ 20 Tahun | 3 | 7,5 |
| >20 tahun | 37 | 92,5 |
| **TOTAL** | 40 | 100 |

Source: Primary Data 2020

Based on table 1 shows that pregnant women in the first trimester based on age ≤ 20 years are 3 respondents (7.5%) and> 20 years as many as 37 respondents (92.5%).

**Table 2. Distribution of First Trimester Pregnant Women by Gravida**

|  |  |  |
| --- | --- | --- |
| **Gravida** | **F** | **(%)** |
| Primipara | 17 | 42,5 |
| Multipara | 23 | 57,5 |
| **TOTAL** | 40 | 100 |

Source: Primary Data 2020

Based on table 2, it shows that pregnant women in the first trimester based on Gravida primipara were 17 respondents (42.5%) and Multipara as many as 23 respondents (57.5%).

**Table 3. Distribution of First Trimester Pregnant Women Based on Hemoglobin Levels (Hb)**

|  |  |  |
| --- | --- | --- |
| **HB** | **F** | **(%)** |
| Hb<11 Gr/dl | 34 | 85 |
| Hb≥11 Gr/dl | 6 | 15 |
| **TOTAL** | 40 | 100 |

Source: Primary Data 2020

Based on table 3, it shows that pregnant women in the first trimester based on Hb <11 Gr / dl are 34 respondents (85%) and Hb≥11 Gr / dl as many as 6 respondents (15%).

**Respondents' Hb Levels Before Granting Corn**

**Table 4. Frequency Distribution of Respondents' Hb Levels Before Giving Corn**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Kelompok** | <11grdl | | ≥11gr/dl | | **F** | **(%)** | |
| F | % | F | % |  | |  | |
| Intervensi | 16 | 80 | 4 | 20 | 20 | | 100 | |
| Kontrol | 18 | 90 | 2 | 10 | 20 | | 100 | |

Source: Primary Data 2020

Based on table 4, it shows that the Hb levels before giving corn in the intervention group 16 respondents (80%) had Hb levels <11gr / dl and 4 respondents (20%) had Hb levels ≥11 gr / dl while in the control group 18 respondents (90%) ) had Hb levels <11gr / dl and 2 respondents (10%) had Hb levels ≥11 gr / dl.

**Respondents' Hb Levels After Giving Corn**

**Table 5. Frequency Distribution of Respondents Hb Levels After Giving Corn**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Kelompok** | <11grdl | | ≥11 gr/dl | | **F** | **(%)** |
| F | % | F | % |
| Intervensi | 4 | 20 | 16 | 80 | 20 | 100 |
| Kontrol | 16 | 80 | 4 | 20 | 20 | 100 |

Source: Primary Data 2020

Based on table 5, it shows that the Hb levels after giving heart, the intervention group 4 respondents (20%) had Hb levels <11gr / dl and 16 respondents (80%) had Hb levels ≥11 gr / dl while in the control group 16 respondents (80%) had levels Hb <11gr / dl and 4 respondents (20%) had Hb levels ≥11 gr / dl.

**Table 6.Test of Corn Utilization in First Trimester Pregnant Women on Complaints of First Trimester Pregnant Women**

|  |  |  |
| --- | --- | --- |
| **Kelompok** | **Nilai p** | **Syarat** |
| Kontrol | 0,000 | **ρvalue**<0,05 |
| Intervensi |

T-Test Test

Table 6 shows the data of the two groups statistically with a value of p = 0.000, so it can be concluded that there is a benefit of giving corn to Trimester I Pregnant Women on Complaints of Trimester I Pregnant Women.

**DISCUSSION**

From the results of data analysis performed using the T-Test Independent, the value of p = 0.000 <α = 0.05 was obtained so that H0 was rejected and H1 was accepted. The conclusion is that there are benefits of giving corn to Trimester I Pregnant Women on Complaints of Trimester I Pregnant Women in Lohia District, Muna Regency.

The results showed that before giving corn to the intervention group 16 respondents (80%) had Hb levels <11gr / dl and 4 respondents (20%) had Hb levels ≥11 gr / dl while in the control group 18 respondents (90%) had Hb levels <11gr / dl and 2 respondents (10%) had Hb levels ≥11 gr / dl. The majority in both groups had anemia. Anemia in pregnancy is a condition of mothers with Hb levels below 11 g% in the first and third trimesters or Hb levels <10.5 g% in the second trimester (4) Anemia in the first trimester of pregnancy is a physiological thing that occurs because of the lack of Hb levels in the blood are below normal values. This is in line with the theory that in the first trimester, complaints occur in pregnant women, namely morning sickness, dizziness, pallor, nausea, vomiting, weakness, and difficulty concentrating which are signs and symptoms of anemia due to anemia.

lack of Hb in the blood Micro effects that arise due to lack of Hb levels: fatigue, laziness and weakness, shortness of breath, palpitations, nausea, pale face, decreased immune system power, pale eyes, headaches and fainting (Wiknjosastro, 2010).

In the intervention group after giving corn 100 gr / week for 7 consecutive weeks which was consumed as a supplementary food, it showed that the intervention group Hb ≥11 gr / dl were 16 respondents (80%).

The content of corn which plays an important role during pregnancy, namely vitamin B1 (thiamine) main function as carbohydrate metabolism, early symptoms of thiamine deficiency, namely decreased appetite, constipation and fatigue. Biotin functions as a coenzyme, a symptom of biotin deficiency, namely feeling tired, lack of appetite and vomiting. Pantothenic acid functions as coenzyme A, an early symptom of pantothenic acid deficiency, namely vomiting and feeling tired. Vitamin B6 functions to increase endurance, overcome nausea and vomiting, symptoms of vitamin B6 deficiency, namely weakness and insomnia. One of the further effects of vitamin B6 deficiency, namely anemia. Vitamin B12 functions as a builder of red blood cells, one of the symptoms of vitamin B6 deficiency, namely anemia due to folate deficiency. Iron functions as the formation of blood cells. Iron deficiency generally causes pallor, weakness, fatigue, dizziness, lack of appetite, decreased fitness and impaired wound healing. Giving corn during the first trimester of pregnancy can reduce the occurrence of complaints to first trimester hamill mothers because in the corn content there are several elements of vitamins B1, B6, B9, B12, Biotin and pantothenic acid which are very good in reducing various complaints that arise in early pregnancy. Other studies have shown that giving foods containing Fe and B9 can increase the Hb of female workers (10).

**CONCLUSIONS AND RECOMMENDATIONS**

**CONCLUSION**

There are benefits of giving corn to Trimester I Pregnant Women on Complaints of Trimester I Pregnant Women in Lohia District, Muna Regency, Southeast Sulawesi with p = 0.000.

**RECOMMENDATION**

Pregnant women are advised to take Fe and Folic Acid tablets regularly in the right way coupled with corn intake because it is a source of nutritional intake that can help increase Hb during pregnancy. In addition, consume more nutritional intake which contains lots of iron and folic acid during pregnancy which can reduce trimester I pregnancy complaints.

Midwives are expected to be able to provide counseling to pregnant women during early pregnancy visits as well as counseling in the community about the benefits of corn during pregnancy in reducing the complaints of first trimester hamill mothers (dizziness, pallor, nausea, vomiting, fatigue, and decreased appetite).Other researchers are expected to carry out further research in the provision of corn during pregnancy with other variables and the frequency of administration can be increased.

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