

ADMINISTRATION OF SALACCA ZALACCA FRUIT ON CHANGES IN HEMOGLOBIN LEVELS IN EMESIS GRAVIDARUM IN BANJARNEGARA DISTRICT

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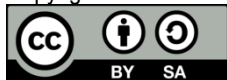
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ABSTRACT

The consequences of emesis gravidarum are unbalanced nutritional intake, dehydration and anemia can occur during pregnancy. A non-pharmacological alternative to reduce nausea and increase hemoglobin levels is by consuming fresh salak fruit. The aim of the research is that salak fruit can increase the hemoglobin levels of pregnant women TM I. This type of research is quasi-experimental, pretest post test control group design. The sample consisted of 30 pregnant women who experienced nausea and vomiting. The treatment in the intervention group was consumption of 100 mg salak fruit plus 30 mg vitamin B6 per day for 10 days and the control group received 30 mg vitamin B6 plus counseling about nutrition for pregnant women in the first trimester. Before the intervention was given, hemoglobin was measured and on day 11 it was measured again. Statistical test with paired t test analysis and independent t test. The results were that there was an average change in hemoglobin levels in the intervention group, namely 0.041 mmHg, while there was no change in the control group. Research shows that 100 mg of salak fruit given for 10 days can increase Hb by 0.41 gr%.

Keywords: Hemoglobin Levels, Nausea Vomiting, Pregnancy, Zalacca Fruit

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INTRODUCTION

Changes that occur during pregnancy are in the form of physical and psychological changes. Physiological changes that are often experienced by pregnant women in the first trimester are nausea and vomiting, this occurs due to increased levels of the hormones estrogen and hCG (*Human chorionic Gonadotrophin*) (Masrurah and Retnosari, 2016). Emesis gravidarum if left untreated will result in fluid loss or dehydration. Dehydration occurs due to lack of fluids consumed and fluid loss due to vomiting. This situation causes the extracellular fluid and plasma to decrease so that the volume of fluid in the blood vessels is reduced and blood flow to the tissues is reduced. This can cause the amount of food substances (nutrients) including iron and oxygen to be delivered to the tissues to decrease, resulting in anemia in pregnant women (Prawirohardjo, 2020)

Emesis gravidarum also a very worrying situation, this is because it can cause decreased appetite and lack of healthy food intake. Even though this is an important period for fetal

development so pregnant women need intake adequate nutrition for the health of pregnancy and the development of the fetus in the womb (Nur fajri dkk, 2020) The nutritional status of pregnant women before and during pregnancy can affect the growth of the fetus being conceived. As a result of unbalanced nutritional intake in pregnant women will also cause anemia. Lower Hemoglobin concentration in mid-pregnancy, early in pregnancy and back towards term. Hemoglobin levels in most healthy women who have iron stores are 11g/dl or more. Anemia in pregnancy will cause the mother to experience a high risk during pregnancy and childbirth (Umboh, Mamuaya and Lumy, 2014). The risk of maternal death, the rate of prematurity, low birth weight and increased perinatal mortality. Bleeding Antepartum and post partum are also common in women who are anemic and more often fatal (Isnainy, Arianti and Rosalia, 2020).

Pregnant women who experience nausea and vomiting do not have an appetite so that the nutrients needed for pregnant women are also not fulfilled, even though early pregnancy nutrients are

needed for fetal growth. The initial need for pregnant women to prevent anemia is iron. Pregnant women need 2-3 mg of iron every day (Prawirohardjo, 2020). Pregnant women who experience nausea and vomiting are usually not given Fe tablets because it will trigger nausea and vomiting. Based on research that has been done to increase hemoglobin levels in pregnant women by consuming beet-root juice, guava juice and tomato juice. While in this study the fruit that can reduce nausea and vomiting and contain iron is *salacca zalacca* fruit. The iron content in 100 mg of *salacca zalacca* fruit is 3.9 mg. *Salacca zalacca* fruit has high fiber so it does not cause constipation (Kinanti AA., 2019). Based on previous research that is part of the *salacca zalacca* fruit in the form of *salacca zalacca* peel tea and the results show that *salacca zalacca* peel tea can increase iron and cause changes in anemia status in adolescent girls (Henny Endah Rachmawati, 2017). Another study is *salacca zalacca* seed flour with the result that it can also increase hemoglobin levels after 2 weeks of administration (Susanti, 2018).

METHOD

The research design is a quasi-experimental with a pretest post-test control group design. The research variables were *salacca zalacca* fruit administration and hemoglobin levels. The population of pregnant women in the first trimester who experienced nausea and vomiting at the Banjarnegara Public Health Center 1, Banjarnegara Public Health Center 2 and Klampok Public Health Center 1. The sampling technique was consecutive sampling. The sample size is 30 respondents with 15 respondents in each group. Ethical clearance is not carried out, but has consulted with nutritionists and obstetrics specialists regarding the content of *salacca zalacca* fruit is permissible for pregnant women and has no side effects. In the intervention group, the consumption of fresh *salacca zalacca* meat fruit is 100 mg plus vitamin B6 30 mg per day for 10 days whereas the control group gets vitamin B6 30 mg and counseling on nutrition for pregnant women in the first trimester. The intervention and control groups were measured levels hemoglobin before being given the intervention for 10 days and on the 11th day the hemoglobin level was measured again.

Data analysis with paired t test and independent t test

RESULTS

Table 1 Characteristics Respondents

Characteristics	Intervention Group (n=15)		Group Control (n=15)	
	N	%	N	%
Age				
No Risk	13	86,7	15	100
at risk	2	13,3	0	0
Gestational Age				
Parity				
Primipara	4	26,7	7	46,7
Multipara	11	73,3	8	53,3
Grandemultipara	0	0	0	0

Based on table 1, age characteristics are not at risk in the intervention group, 86% and 100% in the control group. The mean gestational age was 9.13 weeks or 9-10 weeks in the intervention group and 9.93 or 9-10 weeks in the control group. Multipara parity was 73.3% in the intervention group and 53.3% in the control group.

Based on the results of research from 30 respondents, the age is not at risk, namely between > 20 years and 35 years for the intervention group 86.7% and the control group 100%.

Changes in the average Hemoglobin measurements in the intervention group and control group can be seen in the table below.

Table 2. Hemoglobin Measurements Pregnant Women

Hemoglobin Level	Pre-test		Post-test		p
	Mean	Deviation std.	Mean	Deviation std.	
Plaque intervention index	12.53	1.78	12.94	1.63	0,021
Plaque Control Index	12.49	1.65	12.40	1.33	0,575

The pre-intervention hemoglobin measurement averaged 12.53 and the control group averaged 12.49. For the post-intervention Hemoglobin measurement the average was 12.94 and the control group was an average of 12.40. The average

hemoglobin measurement in the intervention group increased by 0.41 gr%, while the control group experienced a decrease of 0.09 gr%. Based on the paired t test of hemoglobin measurement before and after consumption of zalacca fruit there is a significant difference in hemoglobin measurement before and after in the intervention group with a value of 0.021 ($p < 0.05$) and the control group there is no difference with a value of 0.575 ($p > 0.05$).

The results of the independent t test showed no difference between the intervention and control groups with $p = 0.817$. From the statistical results that have been carried out, it can be concluded that 100 mg of salacca zalacca fruit for 10 days there was no significant difference between the control and intervention groups.

The results of the study for measuring hemoglobin levels before the intervention averaged 12.53gr% and after the intervention 12.94 gr% there was an increase of 0.041 gr%. In the control group, the average before 12.49gr% and after 12.40% so that it experienced a decrease of 0.09 gr%. Based on the statistical paired t test, it was found that there was a $P = 0.021$ in the intervention group and 0.575 in the control group

DISCUSSION

This age is not at risk when experiencing pregnancy because the development of reproductive organs is mature and ready to accept the pregnancy (Mochtar, 2015). The same study conducted by Fifi Ria Ningsih Safari on first trimester pregnant women who experience vomiting at the age of 20-55 years is 84.4% (Fifi-Ria-Ningsih, 2017).

The results of the study were 30 respondents for the intervention and control groups with an average gestational age of 9-10 weeks. Nausea and vomiting often occur after 6 weeks of gestation from the first day of the last menstrual period and last for approximately 10 weeks (Nur fajri dkk, 2020). Research conducted by Dainty Maternity, Putri Ariska, Dewi Yulia Sari with gestational age 9-10 is 26.6% (Maternity, Ariska and Sari, 2017). Other studies have also stated that parity is associated with hyperemesis gravidarum (Puriati, 2014).

Based on the results of the study of maternal parity in the intervention and control groups, namely multipara with a percentage of 73.3% and 53.3%,

respectively. Research conducted by Dainty Maternity, Putri Ariska, Dewi Yulia Sari for parity is mostly multiparous with a percentage of 66.7% (Maternity, Ariska and Sari, 2017).

Based on the results of research measuring hemoglobin levels, there was an increase of 0.041% mm Hg after the zalacca fruit intervention was given. This is because the salacca zalacca fruit contains 3.9 mg of iron to increase hemoglobin levels. In addition, salacca zalacca fruit also contains 8.4 mg of Vitamin C in 100 mg of zalacca fruit. Vitamin C is needed by the body for the formation of red blood cells. The presence of vitamin C in the food consumed will provide an acidic atmosphere so that iron is more easily absorbed by the small intestine (Putri *et al.*, 2019).

Salacca zalacca fruit flesh has high antioxidant activity (Joshua and Sinuraya, 2018). Salacca zalacca fruit that tastes sweet contains a lot of vitamin A, vitamin C and beta carotene so that it can be used as an antioxidant (Manurung, Idin Robintua, 2018). The role of vitamin C in reducing ferric iron to ferrous in the small intestine so that it is easy. The absorption of iron in the form of non-heme increases fourfold when there is vitamin C which plays a role in transferring iron from transferrin in the plasma to ferritin in the liver (Anggita, 2016). Vitamin C can accelerate the absorption of iron in the body, so that hemoglobin levels can increase (Diningsih and Antoni, 2019).

The results of the independent statistical t test for before, after and the difference between the intervention and control showed that there was no difference in consumption of salacca zalacca fruit on hemoglobin levels before, after the intervention and the difference in the intervention and control groups with p-values respectively $p = 0.707$, $p = 0.962$ and difference $p = 0.817$. Although statistical changes did not have an effect, in the intervention group there was an increase in the average difference of 0.41gr%. The benefits of snake fruit for the health of pregnant women are maintaining stomach health, increasing the body's immunity and preventing anemia during pregnancy and as an antioxidant (Sobariah, 2018). Zalacca fruit has epidermis covering the fruit or flesh which is useful for preventing constipation. Based on previous research (Sobariah, 2018) there was an increase in

hemoglobin levels after being given zalacca fruit by 0.562 mmHg.

In a previous study, bark tea with a dose of 2 times in 4 weeks could increase iron and increase the anemia status of adolescent girls (Henny Endah Rachmawati, 2017). Another study of salak fruit seed flour dose of 3.72/BB can increase hemoglobin levels to normal after 2 to 4 weeks of treatment (Susanti, 2018)

In the study, 100 mg of *Salacca Zalacca* fruit given for 10 days could increase Hb 0.41gr% but there was no difference between the intervention group and the control group.

CONCLUSION

Salacca zalacca fruit 100 mg given for 10 days can increase Hb 0.41gr%. Pregnant women who experience nausea and vomiting can consume salacca zalacca in addition to increasing hemoglobin levels, it can also help absorb iron and reduce the onset of vomiting. In further research, a dose of salacca zalacca fruit was added to increase hemoglobin levels. The weakness of this research is that the number of samples is still limited. The recommendation for further research is to increase the number of samples. As well as the doses of salacca zalacca fruit is increased and the delivery time is delayed.

REFERENCE

- ANGGITA, D. R. (2016) 'Peran Konsumsi Pangan Hewani, Sayur, Dan Buah Dengan Kadar Hemoglobin Pada Remaja Putri Di Sman 1 Mojolaban', (July), pp. 1–23.
- Diningsih, A. and Antoni, A. (2019) 'Analisis Kandungan Asam Askorbat Dalam Buah Salak Dengan (Salacca Zalacca) Iodometri', *Jurnal Kesehatan Ilmiah Indonesia*, 4(2), pp. 60–64.
- Fifi-Ria-Ningsih (2017) 'Hubungan Karakteristik Dan Psikologi Ibu Hamil Dengan Hipertensi Gravidarum Di RSUD H.ABD. Manan Simatupang Kisaran', 6(1).
- Henny Endah Rachmawati (2017) 'Pengaruh Dosis Pemberian Teh Kulit Salak Terhadap Asupan Makanan Dan Kadar Hemoglobin Pada Remaja Putri Anemia', *digilib.uns.ac.id*.
- Isnainy, U. C. A. S., Arianti, L. and Rosalia, D. (2020) 'Pengaruh Konsumsi Ekstrak Daun Kelor Dan Madu Terhadap Peningkatan Hb Ibu Hamil Di Wilayah Kerja Puskesmas Way Halim Kota Bandar Lampung', *Malahayati Nursing Journal*, 2(1), pp. 57–67. doi: 10.33024/manuju.v2i1.1678.
- Joshua and Sinuraya, R. K. (2018) 'Review Jurnal: Keanekaragaman Aktivitas Farmakologi Tanaman Salak (*Salacca zalacca*)', *Farmaka*, 16(1), pp. 99–107.
- Kinanti AA. (2019) *Tak Cuma Enak , ini 8 Manfaat Buah Salak Untuk Ibu Hamil. Pregnancy/Second Trimester*, *popmama.com*.
- Manurung, Idin Robintua, D. (2018) 'Pengaruh Perbandingan Sari Buah Salak Padang Sidempuan. Dengan Buah Naga Merah Dan Jumlah Asam Askorbat Terhadap Mutu Sirup Buah', *Jurnal Rekayasa Pangan dan Pertanian*, 6(2).
- Maternity, D., Ariska, P. and Sari, D. Y. (2017) 'Inhalasi Lemon Mengurangi Mual Muntah Pada Ibu Hamil Trimester Satu', *Jurnal Kebidanan*, 2(3), pp. 115–120. Available at: <https://media.neliti.com/media/publications/227233-inhalasi-lemon-mengurangi-mual-muntah-pa-c458d0f0.pdf>.
- Mochtar, R. (2015) *Obstetri Fisiologi dan Patologi*. Cet.1 edn. Jakarta: EGC.
- Nur fajri dkk, U. (2020) *Asuhan Masa kehamilan Based on Reasecah dengan pendekatan holistik*. Yogyakarta: Elmatera Publisng.
- Prawirohardjo, S. (2020) *Ilmu kebidanan*. 4th edn. Jakarta: PT. Bina Pustaka Sarwono Prawiroharjo.
- Puriati, R. (2014) 'Hubungan Paritas Dan Umur Ibu Dengan Kejadian Hiperemesis Gravidarum Di Rsud Adjidarmo Rongkasbitung Tahun 2011', *Jurnal Obstetika Scientia*, 2(1), pp. 180–191.
- Putri, R. N. et al. (2019) 'Hubungan antara Karakteristik Ibu, Kecukupan Asupan Zat Besi, Asam Folat dan Vitamin C dengan Status Anemia pada Ibu Hamil di Kecamatan Jatinangor', *Jurnal Kesehatan Vokasional*, 4(4), pp. 183–189.
- Sobariah, A. (2018) 'Efektifitas Pemberian Salak Pondoh Dan Pisang Ambon Terhadap Kadar Haemoglobin Ibu Hamil Di Wilayah Kerja Puskesmas Sokorejo Kota Pekalongan Tahun 2018', <https://repository.poltekkes-smg.ac.id>.
- Susanti, T. (2018) 'Pengaruh dosis dan Durasi pemberian Tepung Biji Salak Terhadap kadar Hemoglobin dan Indeks ritrosit Pada Tikus Model Anemia', *digilib.uns.ac.id*, 2(2), p. 2016. Available at: <https://doi.org/10.1016/j.gecco.2019.e00539>.