LEMON (CITRUS MEDICA) INFLUENCES INCREASING LEVELS OF HEMOGLOBIN IN ADOLESCENTS

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ABSTRACT

Background : Adolescence is a period where growth occurs rapidly, so that nutritional needs during this period also increase. One nutrient whose needs are increased is iron (Arma, 2007). Women need higher iron intake compared to men. Because of this very high female iron requirement, women are at risk of developing iron deficiency, which can later develop into anemia. Anemia is a decrease in the quantity of red blood cells in the circulation or the amount of hemoglobin is below the normal limit. Symptoms that are often experienced include lethargy, weakness, dizziness, dizzy eyes, and pale face. Anemia can cause various effects on adolescents, among others, reduce the body's resistance so that it is susceptible to disease, decreased activity and learning achievement due to lack of concentration (Permaesih, 2005).

Purpose : from this study was to determine the effectiveness of lemon (Citrus Medica) to increase hemoglobin levels.

Research Method : This study is a quasi-experimental one group pre test post test. The sampling technique is purposive sampling. The number of respondents was 17 respondents. Analytical tests use one sample T-test where the normality test is done first.

Research Results : From the results of the first examination, 3 respondents experienced mild anemia and after consuming lemon for three weeks increased an average of 2.73 grams%. The results of the normality test of data using Shapiro Wilk obtained a sig value> 0.05, which means that the data is normally distributed, then one sample t-test is performed, and the significant results of lemon on the Hb level increase with the value of sig 0,000.

Conclusion : The conclusion of this study is that giving lemon juice has an effect on increasing hemoglobin levels in adolescents with an average Hb increase of 0.6 gram%.

Keywords: Lemon Orange, Increased Hb Level, Adolescents

Introduction

Adolescents are individuals who are in transition from childhood to adulthood. This transition is referred to as the maturation phase (puberty), which is characterized by physical, psychological, and sexual function maturation changes. At puberty, hormones associated with active growth are produced, and make teens have reproductive abilities. Psychological development is shown by the ability to think logically and abstractly so as to be able to think multidimensionally. Adolescents face complex health problems, although all this time is assumed to be a healthy group. Adolescence is a period where growth occurs quickly, so that the nutritional needs of this period also increase. One of the nutrients whose needs are increasing is iron. Iron is needed in all cells of the body and is the basis in physiological processes, such as the formation of hemoglobin (red blood cells) and enzyme function (Arma, 2007).

Women need a higher intake of iron compared to men. In women, iron intake is not only used to support growth, but is also used to replace iron that is lost through the blood that comes out every time he experiences menstruation every month. Because of this very high need for female iron, women are at risk of experiencing iron deficiency, which can later develop into anemia. Anemia is a decrease in the quantity of red blood cells in the circulation or the amount of hemoglobin below the normal limit. Symptoms that are often experienced include lethargy, weakness, dizziness, dizzy eyes, and pale face. Anemia can cause various effects on adolescents, among others, reducing endurance so it is susceptible to disease, decreased activity and learning achievement due to lack of concentration (Permaesih, 2005).

Iron deficiency anemia is the most common anemia in adolescents, because of the high need for growth. Iron deficiency anemia is more common in young women than young men. Anemia is a nutritional problem that affects millions of people in developing countries and remains a major challenge for human health. In 2013 the anemia rate in young women in the Special Region of Yogyakarta (DIY) was 34% (Yogyakarta Health Office, 2013). The prevalence in the Special Region of Yogyakarta (DIY) from 2010 to 2012 was 20.95%; 18.9%; 17.35% tends to decrease below the national target of 20%. Whereas in Bantul district the prevalence of anemia from the latest data in 2013 was 27.67% anemia rate (Bantul Health Office, 2014). Based on Riskesdas data (2013), it was reported that the incidence of anemia nationally was 21.7%, of which 18.4% occurred in men and 23.9% occurred in women. Based on these sex data, women have the highest prevalence of anemia, including young women (Riskesdas, 2013).

Adolescent girls tend to go on a diet so that it can cause a reduced intake of nutrients including iron. In addition, the existence of menstrual cycles every month is one of the factors causing teenage girls to be exposed to iron deficiency anemia. Iron deficiency anemia can be influenced by several factors, namely, lack of consuming animal food sources as a source of easily absorbed iron (heme iron), while nonheme iron is a high source of iron but is difficult to absorb so it is needed a large portion to meet the needs of iron in a day. Can also be caused due to lack of nutrients that play a role in the absorption of iron such as protein and vitamin C (Indartanti, 2014).

Vitamin C can help accelerate the absorption of substances in the body and play a role in transferring iron in the mobilizing blood. iron deposits. especially hemosiderin in the spleen. One of the fruits that have high levels of vitamin C is orange. Oranges can absorb iron in the body because this fruit is rich in vitamin C. Besides vitamin C, oranges contain high folic acid which serves to help the body to make new red blood cells. According to the USDA National Nutrition Database for Standard Reference, the folic acid content in one glass of orange is 31.5 mcg. . Iron is a component of red blood cells that help bind oxygen and thus accelerate the formation of red blood cells. According to nutrition experts consuming high levels of vitamin C as long as it comes from natural ingredients such as fruits and vegetables somewhat safe. From the daily needs of only 75 mg, if you take more vitamin C than that for example 100-500 mg, then the excess dose will come out through water such as urine and sweat. Lemon Orange is a pretty good source of vitamin C.

The results of a study conducted Karuniawati (2015)by on the Effectiveness of Giving Eggs and Vitamin C to Increased Hemoglobin Levels showed that the provision of eggs and vitamin C had a significant effect on increasing hemoglobin. But research that uses vitamin C in supplement form, is not derived from natural ingredients such as fruits and vegetables. Therefore the authors would like to examine and test the differences in the effectiveness of lemons on increasing hemoglobin in adolescents.

Research Methodology

This research is a quasi experimental one group pre test post test. The sampling technique is puposive sampling. The number of respondents was 17 respondents. Analytical tests using one sample T-test where the normality test is done first.



Research has been conducted at the Yogyakarta Husada Karya Health Academy. The time of the research is carried out in June to July

Result

Based on research that has been carried out on 17 respondents from the Hb examination results, there were 13 respondents who experienced an increase in HB. Pretest examination conducted on 17 respondents found in 3 respondents experienced mild anemia and after giving treatment by consuming lemon for three weeks found 2 respondents experienced an increase in Hb with an increased value on average 2.73 grams%. Before processing the data The results of normality test data using Shapiro Wilk obtained sig values> 0.05, which means that the data are normally distributed

The data is normally well distributed using kolmogorov smirnov sig> 0.05 which is 0.2, if using Shapiro Wilk data is also normally distributed the value of sig> 0.05 is 0.989

And then one sample t-test was conducted to obtain Significant lemon results on increasing Hb levels with a sig value of 0,000.

	Pre Pemberian lemon	Post pmberian lemon			
Mean	13,2	13,8			

The conclusion of this study is that giving lemon has an effect on increasing hemoglobin levels in adolescents with an average Hb increase of 0.6 gram%.

The results Mulvawati's of research (2003) showed that iron absorption in the body could be increased by consuming vitamin C. Lemon content of lemon has a high vitamin C content compared to lime juice and as a source of vitamins A, B1, B2, phosphorus, calcium, pectin, astiri oil 70% limone, felandren, bioflavonoid kumarins, geranil acetate, citric acid, linalil acetate, calcium, and fiber. Lemon has a variety of uses. Lemon fruit is famous as an ingredient to be squeezed and taken its juice as a beverage. According to Winarno (1986) said that Vitamin C plays an important role in iron absorption. This can be attributed to Vitamin C functioning as a producer of ferrous ions which is a form of iron that is easily absorbed. The presence of Vitamin C can increase iron absorption by as much as 30 percent of the vegetables or fruits consumed, including lemons which incidentally have high vitamin C content.

Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
KadarHPost Tindakan	,099	17	,200*	,985	17	,989

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

One-Sample Test

	t	df	Sig. (2- tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
KadarHPostTi ndakan	47,489	16	,000	13,79412	13,1783	14,4099

Test Value = 0

Conclution

The conclusion of this study is that giving lemon juice has an effect on increasing hemoglobin levels in adolescents with an average Hb increase of 0.6 gram%.

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