Journal of Global Biosciences ISSN 2320-1355
Vol. 3(2), 2014, pp. 576-577 http://mutagens.co.in
Date of Online: 24, April- 2014

EFFECT OF VITAMIN C SUPLEMENTARY AFTER LUNCH ON HEMOGLOBIN LEVEL OF ADOLESCENT GIRLS

Yeni Tutu Rohimah

Nursing Program,
Surakarta Health-Polytechnic–Central Java,
Indonesia.

Abstract

Iron-deficiency anemia is a common issue for women; especially on growth-phase, reproduction, pregnancy and lactation. The need of iron-consuming increases during those periods. The absorption of Iron in non-hem increases four times if there is vitamin C consumed. This study aims at finding the Effect of Supplementary Vitamin C on After Lunch of Female Adolescence Hemoglobin. The study uses quasi experimental method with pre and post group control design. The sample are 30 students of Midwifery Academy. They are divided into two groups. The first group were given Vitamin C after lunch for eight days. The second group (as the control-group) or the placebo. To test the level of hemoglobin, Automatic Analizer of Sysmex KX-21 was taken before and after Vitamin C-consuming. To analyze the data, t-test (α = 0,05) was used. The rate of early hemoglobin level at the first group was 11,60 ± 0,72 g/dl. After the treatment was 12,2 ± 0,86 g/dl. The increasing rate of hemoglobin level was 0,62 ± 0,57 p = 0,001. The rate of early hemoglobin level at the control group was 11,50 ± 0,86 g/dl. After the treatment was 11,70 ± 0,94. The increasing rate hemoglobin level was 0,20 ± 1,3 g/dl. p = 0,496. The difference of hemoglobin-level between the first group and its control-group was 0,50 ± 0,86, p = 0,045. Effect of Vitamin C supplementary after lunch was increasing hemoglobin level on female adolescent.

Key words: Vitamin C-supplementary, after lunch, hemoglobin-level, female Adolescent.

INTRODUCTION

Iron-deficiency anemia is a common issue for women, especially on growth-phase, reproduction, pregnancy and lactation. Iron –deficiency anemia commonly occurs on women around 15-24 years old; because of menstruation, the need of Iron-intake increases [1]. There are three causal factors of Iron-deficiency: a) The loss of Iron in daily food-absorption. b) The increasing-loss of Iron because of menstruation on adult female, the use of oral-contraception, the parasite, like intestinal worms. c) The lack of Iron related to a low *bio-availability* as commonly happen in developing countries [2].

Iron-intake, attention must be paid to its variant and the mechanism of absorption. In some food, there are substances which are able to prevent the Iron-absorption, such as *tannin* in tea, *posvitin* in the egg-yolk, the protein in soybean, phytat, phosphate, calcium, and food-fibre. In our intestinal organs, the Iron-absorption in the form of *fero-salt*; it is easier to happen than in *feri-salt* because the fero-salt is soluble in the pH of the small intestine. Besides, the feri-salt cannot be dissolved in pH with more than 3 [3].

The role of Vitamin C in human's body is a reaction of feri-ion which is reduced into fero-ion in intestinal organs. The process makes the Iron is easier to absorb. Along with the Iron, Vitamin C will form a complex compound, ascorbic- acid; which is soluble in water and easy to absorb. In adult's body, Vitamin C is a potential substance that can increase the absorption of Iron. Inside 25-30 mg of Vitamin C, it can raise the 85% of Iron. Vitamin C can also increase the absorption of non-hem-Iron four-times, vitamin C deficiency produces Anemia, and the solution is by giving 250 g of Vitamin C each day may be increasing level of vitamin C in the blood. This study aims at examining the effect of Vitamin C-supplementary after lunch on Hemoglobin-level for female adolescence [4].

MATERIALS AND METHODS

The study was a quasi-experimental with Pre and Post-Test Control-Group design. The samples are 30 students of Midwifery Academy around 18-20 years who stay in the dormitory. They are divided into

2 groups. The first as the experimental group, the second is as the control-group. The experimental group were given 250 g of Ester – Vitamin C on normal adult diet after lunch, in equal with fruits-intake in the dormitory for 8 days for the control-group. Both groups are not allowed to drink tea, coffein, soft drink, only mineral water the whole day' during the 8 days of observation. They just eat the fruits provided in the dormitory. The independent variable is the of Vitamin C supplementary, the dependent variable is the hemoglobin-level. Students-test on their hemoglobin level is done after signing the informed consent, before and after the treatment of Automatic analyzer of Sysmex Kx-21. The data-analysis uses t-test.

RESULTS

Based on data, the rate of early hemoglobin level at the first group was 11 ± 0,72 g / dl , After the treatment was 12,2 ± 0,86 g/dl. The increasing rate of hemoglobin level was 0,62 ± 0,57, The different of hemoglobin level rate at the first group before treatment compared to it after treatment was that its increasing was significanly p = 0,000. The rate of early hemoglobin level at the control group was 11,50 ± 0,86 g/dl. After the treatment was 11,70 ± 0,94. The increasing rate hemoglobin level was 0,20 ± 1,3 g/dl, The different of hemoglobin level rate at the second group before treatment compared to it after treatment was that its increasing was not significanly p = 0,496. The difference of hemoglobin-level between the first group and its control-group was 0,50 ± 0,86, difference was sicnificanly p = 0,045.

DISCUSSIONS

In control-group, The different of hemoglobin level rate before treatment compared to it after treatment was that its increasing was not significanly. On normal diet for the adult in Indonesia, the following are commonly given as main menu: egg-yolk, soya-bean and fibred-vegetables. there is no guarantee of Iron-availability in human's body, even after consuming diet with high Iron. It is because the absorption of Iron depends of several substances that may prevent or support the absorption. Those which can prevent : the tannin in tea, posvitin in egg-yolk, phytat, the protein in soya-bean, phosphate, calcium and fibre in our dietary food [5]. The protein in soyabean decreases the absorption of Iron because its high-level of phytate. The tannin in tea prevent the absorption of Iron because it is tied into Iron-tannate which is difficult to absorp [4].

There was a significanly difference of mean between experimental and control-group, concerning with the hemoglobin level before and after the treatment. Eventhough the menu provided for both groups are the same, the absorption is different. The experimental group shows a higher absorption because they are given Vitamin C. The role of Vitamin C inside human's body is inside the reaction of reducing the feri-ion into fero-ion in intestinal organs. It becomes a complex compound which is soluble in water and is easy to absorp. Vitamin C in human's body is a potential substance that can increase the absorption of Iron. For the Adult, 25-30 mg of Vitamin C can raise the absorption of Iron in 85%. Vitamin C-intake can also increase the absorption of Iron four-times. With the dosage of 250 mg Vitamin C per day, it can increase the hemoglobin level in human's blood [4].

CONCLUSION

Vitamin C-suplementary after lunch can increased the Hemoglobin level of adolescent girls**.**

REFERENCES

1. Jandl, J.H. 1996. *Blood Textbook of Hematology*, Second Edition, New York : Library of Congress
2. Mahan, R.B. 1996. Effect of Vitamin C and Iron Fortified Supplementary Food on Ferritin and Iron Status of Rural Pregnancy in Vietnam, *Med J Jones*.6(2):113-132
3. Murray, R.K.2003. *Harver's Illustrated Biochemistry*, Twenty Sixth Edition, India: McGraw Hill Co.
4. Almatier, 2003. *The Basic Principles of Dietary Sciences*. Jakarta:Gramedia Pustaka Utama
5. Hellberg, A, 2000. Studies on Biovailability of Inc in Humans. Effect of Heme and Non-Heme Ion on The Absorption of Vitamin C, *American Journal* 7(2): 205-215.