

PENGARUH PEMBERIAN RIBOFLAVIN DAN ZINC PADA SUPLEMENTASI ZAT BESI TERHADAP PENINGKATAN KADAR HEMOGLOBIN DAN KONSENTRASI BELAJAR REMAJA PUTRI ANEMIA

HIDAYATI, IRUL

Pembimbing : Prof. Dr. Kuntoro, dr., M.PH., Dr. PH

RIBOFLAVIN; ANEMIA; HEMOGLOBIN

KKC KK TKM 33/11 Hid p

Copyright© 2011 by Airlangga University Library Surabaya

SUMMARY

The Effect of Riboflavin and Zinc in Iron Supplementation on The Increase of Hemoglobin Levels and Learning Concentration Among Anemic Adolescent Girls

Adolescent girls are group at high risk for the occurrence of various nutrition problems, including anemia (Deegan et al., 2005). Adolescent girls more prone to anemia than children and adults because the adolescent age is in its infancy that requires the higher nutrients including iron. Based on the results of the Indonesian National Household Health Survey in 1995 (in Farida, 2006) showed that the prevalence of anemia in adolescent girls in Indonesia is at 57,1%. The Indonesian National Household Health Survey in 2004 declared that the prevalence of anemia in adolescent girls aged 10-18 years is as much as 57,1% and age 19-45 years is at 39,5% (Isnati, 2007). In developing countries, especially Indonesia iron deficiency usually occurs with other micronutrient deficiencies (Wieringa et al, 2003). Including riboflavin and zinc deficiency. Iron is needed in hemopoiesis and in the synthesis of hemoglobin to get normal hemoglobin levels (Indrawati, 2004). Riboflavin plays a role in erythropoiesis, but it is also important to increase the iron absorption, and helps transport ferritin from the tissue. Riboflavin deficiency will disturb the iron utilization and reduce the synthesis of hemoglobin (Thorne, 2008). Zinc is micromineral that is required for almost all chemical reactions in the body, including heme biosynthesis, in the formation of erythrocytes (red blood cells) by the enzyme carbonic anhydrase essential to help the balancing of acid-base (Linder, 2006). This research discusses the effect of riboflavin and zinc in iron supplementation on hemoglobin levels and learning concentrations among anemic adolescent girls in SMK Wachid Hasyim Surabaya. This study was an experimental research conducted from April to August 2011. The population were 287 students of senior high school of 1th. They were 14-17 year old. The sample of sub population were 48 students who have anemia of Hb < 12 g/dl. Sampling random were used to get 48 students, they divided by 4 group. The post group was supplementation Fe + Riboflavin, the second one was supplementation Fe + Zinc, the third was supplementation Fe + Riboflavin + Zinc and the other was placebo. The results showed that there were significant differences of hemoglobin level before and after supplementation in the three treatment and control group (paired t test: $p < 0,05$), more over there were no significant differences of elevated level of hemoglobin among three groups (one way anova: $p = 0,814 > 0,05$). There were significant differences of learning concentration before and after supplementation in the two treatment and control group (paired t test: $p < 0,05$) and there were significant differences of learning concentration three groups (one way anova: $p = 0,14 < 0,05$). There was influence of elevated levels of hemoglobin to the increased learning concentration among anemic adolescent girls (linier regression: $p = 0,010 < 0,05$).

Conclusion: After supplementation there was an increased in mean hemoglobin levels but

the increase was not significant between treatment and control groups. After supplementation there was an increased in the mean of learning concentration but the increase was significant between treatment and control groups. Gave riboflavin and zinc could increase learning concentration. There was influence of elevated levels of hemoglobin to the increased learning concentration among anemic adolescent girls. Suggestions: For SMK Wachid Hasyim is expected to follow up the results of this study in collaboration with clinic physicians to routinely provide nutrition counseling in adolescent girls in order to increase knowledge about anemia that is expected to increase the intake of nutrients and hemoglobin levels in adolescent girls. For those who still suffer from anemia needs further examination in order to know the cause of the type and cause of anemia. For the Health Department is expected to give attention to the treatment of anemia in school children, especially adolescent girls with education programs and provision of iron supplements. Also required the same study with a longer time to see the influence of riboflavin and zinc supplementation on hemoglobin levels and an increase in the concentration studied.

ABSTRACT

This research discusses the influence of riboflavin and zinc in iron supplementation on hemoglobin levels and learning concentrations among anemic adolescent girls in SMK Wachid Hasyim Surabaya. This study was an experimental research conducted from June to August 2011. The population were 287 students of senior high school of 1th. They were 14-17 year old. The sample of sub population were 48 students who have anemia of Hb < 12 g/dl. Sampling random were used to get 48 students, they divided by 4 group. The post group was supplementation Fe + Riboflavin, the second one was supplementation Fe + Zinc, the third was supplementation Fe + Riboflavin + Zinc and the other was placebo. The result shows that the hemoglobin levels after supplementation of group I was greater than before supplementation, group II, group III and control group was too (paired t test: $p < 0,05$). The Anova test showed that there was no difference of hemoglobin levels among three treatment and control group ($p=0,814 > 0,05$). The result shows that the learning concentration after supplementation of group I was greater than before supplementation, group II, and control group was too (paired t test: $p < 0,05$). The Anova test showed that there were significant differences of learning concentration three groups ($p = 0,14 < 0,05$). And there was influence of elevated levels of hemoglobin to the increased learning among anemic adolescent girls. Conclusion: After supplementation there was an increased in mean hemoglobin levels but the increase was not significant between treatment and control groups. After supplementation there was an increased in the mean of learning concentration but the increase was significant between treatment and control groups. Gave riboflavin and zinc could increase learning concentration. There was influence of elevated levels of hemoglobin to the increased learning concentration among anemic adolescent girls.

Keywords: iron, riboflavin, zinc, anemia, hemoglobin level, learning concentration