

Efficacy of multi micronutrient and single iron supplementation on iron status of Indonesian infants aged 6-12 months old

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Abstrak

This randomized double-blind placebo-controlled trial aimed to compare the efficacy of daily iron supplementation and multi-micronutrient supplementation both daily and weekly basis on increasing iron status among 284 apparently healthy Indonesian infants aged 6-12 mo. Infants were randomly assigned to receive either daily 1 RDA multi micronutrient supplement (n = 72), weekly 2 RDA multi micronutrient supplement (n = 70), daily ferrous sulphate 10 mg (n = 72), or placebo (n = 70) for wk. Blood hemoglobin, plasma ferritin, plasma zinc, and plasma C-reactive protein concentrations were measured prior to intervention and after 23 wk of supplementation. At baseline, 58.1% of subjects were anemic, 28.2% were iron deficient, and 11.2% were zinc deficient. After 23 wk of supplementation, both daily 1 RDA multi micronutrient and iron supplemented groups had significantly increased blood hemoglobin and plasma ferritin concentration, furthermore reducing the percentage of anemia and iron deficiency.

However, the changes of hemoglobin were not significantly different among the treatment groups. Changes of hemoglobin were significantly higher in daily 1 RDA multi micronutrient group than in placebo group when initial blood hemoglobin was low. The change of plasma ferritin concentration in both daily 1 RDA multi micronutrient and iron groups was significantly higher than in other groups. Hemoglobin and ferritin concentrations of weekly 2 RDA multi micronutrient group were not significantly increase, but there were significantly increased in the subjects with low concentration of blood hemoglobin or plasma ferritin.

Proportion of infants with zinc deficiency was increased significantly in iron group Daily I RDA multi micronutrient and daily iron supplementation are efficacious in improving the concentration of blood hemoglobin and plasma ferritin and reducing the percentage of infants with anemia and iron deficiency of Indonesian infants aged 6-12 months in a rural community.

However, there was an increasing proportion of infants with zinc deficiency in daily iron supplementation. The efficacy of daily 1 RDA multi micronutrient supplementation was higher among the children with blood hemoglobin < 110 g/L Efficacy of weekly 2 RDA multi micronutrient supplementation on the concentration of blood hemoglobin and plasma ferritin of all subjects was not found, but it affected in children with low concentration of blood hemoglobin or plasma ferritin.