ABSTRACT

ZULHAIDA LUBIS. Effect of Vitamin B12 Suplement on Serum Vitamin B12, Hemoglobin and Memory Level of Preschool Children. Supervised by HARDINSYAH, HIDAYAT SYARIEF, FASLI JALAL and MUHILAL

This research was aimed to analyze of vitamin B12 deficiency and its risk factors, and the effect of vitamin B12 suplementation on serum vitamin B12, hemoglobin and memory level of preschool children. A randomized community controlled trial of 32 preschool children (4-6 year) was applied for 6 months. Subjects divided into 2 groups, treatment group (received 10 μg of vitamin B12 syrup daily) and control group (placebo). Serum vitamin B12, hemoglobin and memory level of children was measured before and after the intervention. In the baseline, vitamin B12 deficiency and anemia among preschool children was 24.1% and 46.7% respectively. Low intake of vitamin B12, protein and calcium are the risk factors of vitamin B12 deficiency. After 6 month of vitamin B12 suplementation, prevalence of vitamin B12 deficiency of treatment group decreased from 26.7% to 0.0%, while in the control group increase from 21.4% to 28.6%. The mean increasing of vitamin B12 serum was different significantly among the two group (148.4±110.9 pg/mL in the treatment group and 3.7±12.8 pg/mL in the control group, p≤0.000). The mean change of hemoglobin was different significantly among the two group (1.0±1.3 g/dl in the treatment group and -2±1.2 g/dl in the control group, p≤0.017). Among the anemia children, the mean change of hemoglobin also was different significantly between intervention and control group (2.0±1.2 g/dl in the treatment group and 0.5±0.7 g/dl in the control group, p≤0.028). Memory level was effected by vitamin B12 suplementation for the overall children with Relative Risk (RR) was 19.5. Among the anemia children, memory level was effected by vitamin B12 suplementation with Relative Risk (RR) was 10.0. These result imply the important of vitamin B12 suplementation on improving vitamin B12, hemoglobin and memory level of preschool children.

Keywords: serum vitamin B12, hemoglobin, memory level, vitamin B12 suplement, preschool children