

Transketolase and TPP effect in elementary school children

Eun-Hee Jung^{1)*}, Kyung-Hee Han²⁾, Mee-Sook Choi³⁾

School of General Education¹⁾, Dept. of Food and Nutrition²⁾, Seowon University,
Chung Cheong College³⁾, Chongju, Korea

Thiamin has been considered as one of the most susceptible vitamin to be deficient marginally or severely. According to Korean national health and nutrition survey report, daily dietary intake of thiamin in Korea has been known to be enough, showing 126.6% of RDA. However, studies about specific groups have reported a slight difference, showing the distribution from 50 to 131% of RDA. The nutritional status of thiamin has been estimated biochemically by transketolase assay and TPP effect in erythrocytes. Although there were just a few studies by biochemical enzymatic assay, the results from biochemical assay suggested a high incidence of marginal to deficient state, and were not positive as in the survey of dietary intake. Over the years, the study on the thiamin has been done rarely, especially in rural area which might be more vulnerable. The present study was performed to assess the dietary and nutritional status of thiamin in 104 elementary school children, living in rural area of Chungbuk. Dietary intake was obtained by 24 hour recall method and nutritional status of thiamin was determined by measurement of transketolase activity in erythrocytes. The data analysis was performed using S-plus 2000(Mathsoft) program. Average dietary intake of thiamin was found to be adequate (1.15mg, 109.2% of RDA), even though dietary intake of energy was not more than 1,719 kcal, 81.5% of RDA. Transketolase activity in erythrocytes was distributed in the range of 0.294 - 0.744 mU/mgHb and the mean value was 0.540mU/mgHb. The mean value of TPP effect was 7.9% and the range was 0 - 77.4%. It appeared that only 6.7% of children was deficient in thiamin, severely or marginally. There were no significant correlations between transketolase activity and dietary thiamin intake, and between TPP effect and dietary thiamin intake.