ICCN Poster Presentations

Evidence based nutrition

Serum and urinary levels of retinol and tocopherol of Japanese women

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The urinary excretion and serum levels of retinol (Ret) and tocopherol (Toc) of 33 female university students were measured. Blood samples were taken early in the morning after an overnight fast. Twenty-four-hour urine (24hU) and 2nd-spot urine (2ndU) in the morning were collected for analyses. Ret and Toc were extracted with hexane from serum and urine and measured by high-performance liquid chromatography. Serum and urinary levels of the kidney function parameters examined were within the normal ranges for the Japanese. The mean serum levels of Ret and Toc were 642 ng/ml and 7.71μg/ml, respectively and the Ret level showed a positive correlation with the level of Toc. Urinary excretion concentrations over 24 h (24hU) of Ret and Toc were 635 pg/ml and 2.23 ng/ml and the total amounts of excretion were 539 ng/day and 1.91μg/day, respectively. In urinary 2nd-spot excretion (2ndU), the concentrations were 755 pg/ml for Ret and 2.77 ng/ml for Toc and the total excretion amounts of Ret and Toc were 129 ng and 459 ng for the total volume of 2ndU, respectively. Serum levels of Ret and Toc were not correlated with urinary excretion in 24hU and 2ndU. The urinary excretion concentration of Ret or Toc was not statistically different between those in 24hU and 2ndU, respectively. Urinary concentration of Ret in 24hU correlated with the total amounts of Ret in 24hU, and with the urinary concentration of Ret in 2ndU. Also, 24 h urinary concentration for Toc was correlated with the total amounts of Toc in 24hU, and with the urinary concentration of Toc in 2ndU. Urinary Ret concentration of 24hU or 2ndU was correlated with the concentration of Toc excretion in the 24 h or 2nd-spot urine. Urine excretion concentrations of Ret and Toc showed a positive correlation with the levels of urinary creatinine and urea nitrogen of the kidney function index. This study shows that the urinary excretion of Ret and Toc was independent of their serum status, and that the urinary excretion concentration and total amounts of Ret and Toc of 24hU can be estimated from those of 2ndU.

Serum levels of amino acids of Nepalese living in the south-central rural region

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Malnutrition is common health problem in Nepal particularly in rural areas. Poor nutritional status of children in rural areas is well correlated with the high infant mortality (urban: 50 and rural: 79). The serum levels of protein and amino acids provide useful information about nutritional status. We carried out a nutrition survey using the 24-hr recall method and blood sampling in subjects (males 69, females 100, aged 15-80) living in the south-central rural region. The serum amino acid levels were determined by high-performance liquid chromatography (HPLC). The daily mean intakes of protein, fat were 43.2 ± 14.8 and 21.4 ± 10.5 g for males and 40.1 ± 16.2 and 21.7 ± 10.2 g for females, respectively. The mean amounts of total energy intake were 1906 ± 505 and 1714 ± 570 kcal for males and females, respectively. The percentage of animal protein consumed were 19.7 ± 17.2 and 17.2 ± 13.9 % for males and females, respectively. Eighty percent of the total energy was taken from carbohydrate, 11.0 % from fat and 9.3 % from protein. The serum levels of total amino acids, total essential amino acids (EAA) and total non-essential amino acids (NEAA) tended to be higher than the normal range. However the ratio of EAA/NEAA was somewhat lower than the normal range. The serum levels of total aromatic amino acids (AAA) and total branched-chain amino acids (BCAA) were higher than the normal range. The ratio of BCAA/AAA (Fisher's ratio) was significantly low compared with the normal range. Examining the individual amino acids show that the serum levels of serine (Ser), glycine (Gly), alanine (Ala), arginine (Arg) and phenylalanine (Phe) were markedly higher than the normal range. These results showed that the pattern of serum amino acids in Nepalese differed from those in the normal range, possibly due to the difference in the dietary intake.