

Determination of pediatric reference intervals for plasma and urine essential amino acids in a Turkish population with HPLC

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Aim: Leucine, isoleucine, valine, phenylalanine, threonine, tryptophan, methionine, lysine, and histidine are essential amino acids for humans. The aim of this study was to establish age- and gender-specific reference intervals for essential amino acids, in a healthy Turkish pediatric population.

Methods: A total of 945 clinically healthy children (531 boys and 414 girls, ranging in age from birth to 14 years) were enrolled in this study. Plasma and urine amino acids' concentrations were measured by HPLC method with ninhydrin post-column derivatisation.

Results: Plasma essential amino acids' concentrations were higher in girls than boys in the age groups of birth-1 month and 7-14 years. But there is no difference the other age groups. However, urine essential amino acids' concentrations were higher in girls than boys in the age group of birth-1 month. But there is no difference the other age groups. Boys and girls exhibited their highest plasma essential amino acids' levels in the age group of 7-14 years. On the other hand, boys and girls exhibited their highest urine essential amino acids' levels in the age group of 1-24 months. Our results demonstrated that gender-related differences in plasma leucine, isoleucine, valine, phenylalanine, lysine, and histidine concentrations increased with increasing age in boys but not girls. On the other hand, gender related differences in urine leucine, tryptophan, methionine, and lysine concentrations declined with increasing age in girls but not boys.

Conclusions: We defined essential amino acids' reference intervals in a Turkish pediatric population.

Biography

Enis Macit has completed his Ph.D. from Gulhane Military Medical Academy on 2008 Ankara, Turkey. He is stil working in the same faculty as assist. prof. in the department of toxicology. He has published more than 15 papers in journals and serving as an editorial board member of Journal of Investigational Biochemistry (a member journal of Scopemed journal management system).