

# Can vitamin D status be assessed by serum 25OHD in children?

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**Background** To examine the relationship of serum 25-hydroxyvitamin D (25OHD) concentrations with serum parathyroid hormone (PTH) levels, body mass index (BMI), and environmental factors in a population of Caucasian children living at latitude 43°N. **Methods** Cross-sectional study on 288 children aged 1 month to 13 years who presented to a pediatric emergency unit during a 21-month period. **Results** Mean (SD) serum 25OHD concentrations were 40.6 (17.6), 30.9 (12.0), and 26.4 (9.9) ng/ml (1 ng/ml=2.5 nmol/l), in children aged 0-1, 2-5, and ≥6 years, respectively. Serum PTH levels were 26.6 (13.6), 24.3 (11.9), and 32.7 (12.1) pg/ml in the same groups. Infants had 25OHD concentrations significantly higher. PTH levels were significantly higher in children aged ≥6 years. There was no significant correlation between serum 25OHD and PTH concentrations. Totals of 15.6% and 2.1% of children had 25OHD values less than 20 and 10 ng/ml, respectively, but none had elevated serum PTH or clinical manifestations related with vitamin D deficiency. Age (inverse correlation) and season (higher values in summer), but not BMI, sex, and time spent outdoors, influenced serum 25OHD concentrations. **Conclusions** Our results raise doubt on the assumption of only a serum 25OHD threshold as indicative of vitamin D deficiency in children. © IPNA 2014

25OHD

Children

Correlation

Deficiency

PTH

Threshold

25 hydroxyvitamin D

parathyroid hormone

25-hydroxyvitamin D

parathyroid hormone

vitamin D

adolescent

age

Article

body mass

Caucasian

child

comparative study

controlled study

cross-sectional study

environmental factor

female

human

infant

latitude

major clinical study

male

parathyroid hormone blood level

prevalence

priority journal

prospective study

seasonal variation

spring

summer

vitamin blood level

analogs and derivatives

blood

luminescence

preschool child

Spain

vitamin D deficiency

Adolescent

Body Mass Index

Child

Child, Preschool

Cross-Sectional Studies

Female

Humans

Infant

Luminescent Measurements

Male

Parathyroid Hormone

Spain

Vitamin D

Vitamin D Deficiency