

Assessment of 25(OH)D Threshold in a Population of Pregnant Mothers

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Background: It is apparent that vitamin D deficiency is becoming an issue all over the world at an epidemic level and it is seen among many regardless of age, ethnicity or socio demographic factors. However, there is no definite agreement for the optimal level of active metabolite of vitamin D [25(OH)D].

Objective: Our objective was to assess Institute of Medicine (IOM) recommendations on 25(OH)D threshold in a population of pregnant mothers.

Methods: Ethical clearance was obtained from the Ethics Review Committee, University of Sri Jayewardenepura. Women (n=105) aged 18 years or more with singleton pregnancies in their 3rd trimester were invited for the study at the antenatal clinic at Colombo South Teaching Hospital. Women on vitamin D supplements, having serious medical problems (non-obstetric) and disabilities that could be related to bone metabolism were excluded. A pretested interviewer administered questionnaire was administered to collect information on socio-demography, nutrition, health, physical examination including anthropometry. A serum sample was taken and stored at -20 °C prior to measurement of 25-(OH)D by VIDAS® 25 OH vitamin D Total using the Enzyme Linked Fluorescent Assay (ELFA). It is very well correlated to the Liquid Chromatography-Mass Spectrometry reference method with cross reactivity of 100% with 25 (OH)D and 91% with Vitamin D2. The DRG (EIA-3645) Intact-PTH ELISA was employed for quantitative determination of intact-PTH in serum. Calcium, phosphate and ALP were analyzed with colorimetric method. Data were analyzed using SPSS version 15.0.

Results and Discussion: 25(OH)D, ALP, PTH, calcium and IP were 18.6±7.2 ng/mL, 193.6±172.0 U/L, 23.7±22.0 pg/mL, 2.3±0.2 mmol/L and 1.3±0.2 mmol/L respectively. Only calcium and IP were within the normal range for the whole population. Vitamin D deficiency (<12 ng/mL) was 20.2%. However, abnormal PTH (>66.5 pg/mL) was found only in 5% among the deficient. Thus we calculated the sensitivity (20%) and specificity (81%) of the IOM cut off level for our sample. Positive predictive value was 5%.

Conclusions: Secondary hyperparathyroidism was not prevalent among the vitamin D deficient population. Since, the positive predict value for the vitamin D test is low; there is a need to redefine the cut off values for vitamin D levels in our population.