

Short communications:

A relationship between serum vitamin D levels and the age of deciduous teeth eruption in healthy infants

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Hydroxyapatite crystals forms the base for dentine and its formation is orchestrated by the homeostasis of calcium, phosphorus and vitamin D [1]. The hypovitaminosis D state leads to delayed primary and permanent teeth eruption, enamel hypoplasia, small sized teeth, dental cavities and caries [2,3].

Hence we conducted this study to determine the relationship between serum vitamin D level and primary teeth eruption in healthy infants aged 9-11 months who came to pediatric OPD for vaccination in Dr L H Hiranandani hospital, Mumbai between July 2013 to January 2015. History of oral vitamin D dose intake (from birth) and duration were noted [2]. Our hypothesis was vitamin D deficiency has a role in delaying the primary teeth eruption.

45 healthy infants who were born as full term with normal birth weights, absence of clinical evidence of vitamin D deficiency, attained normal developmental milestones, whose anthropometric indices were in normal limits, to mothers of no antenatal risk factors were included in study. Maternal data, birth weight, mode of delivery, sex, anthropometric measurements at birth and now, intake of vitamin D supplementation with dose and duration, diet history including fortifiers, clinical findings suggestive of vitamin D deficiency on examination, history of teeth eruption in parents were recorded at the time of blood collection. We excluded infants with recurrent respiratory tract infection/ wheezing, signs of malnutrition, on drugs like steroids, antiepileptic drugs. Institute ethical committee's approval and Informed written consent from the parents were obtained. Using SPSS version 16.0 the data was statistically analysed. The probability of significant P value < 0.05 was adopted as statistically significant.

We enrolled 45 healthy infants (25 males) with mean birth weight of 2975 gram. Serum 25-OH vitamin D levels less than 20 ng/ml taken as vitamin D deficiency (clinical endocrine society classification, US). Vitamin D >20 ng/ml considered as normal vitamin D levels. We obtained the following results (table 1 & 2). The p value obtained was 0.502 and found to be insignificant. Though it has been mentioned that low vitamin D influences delay in primary teeth eruption, the present study did not find any significant correlation between vitamin D levels and delay in primary teeth eruption. But we found a slight earlier onset of primary teeth eruption among the group who had normal vitamin d levels. Further larger studies at different settings are needed to find out an association.

Table 1: Demographic data

Parameter(Total 45 infants)	Data
Age of infants	Mean 9.95 months
Maternal age during delivery	Mean 28.8 years
Mode of delivery	
Vaginal delivery	25(55.6)
Cesarean section	20(44.4)
Primigravida	27(60%)

Table 2: Relationship of vitamin D levels and primary teeth eruption

Parameter	Group-1 Normal vitamin D and teeth erupted	Group-2 Normal vitamin D and no teeth eruption	Group-3 Vitamin D deficiency and teeth erupted	Group 4 Vitamin d deficiency and no teeth eruption
Total n=45				
n(%)	16(35.5%)	14(31.1%)	8(17.8%)	7(15.6%)
Mean age of primary teeth erupted	6.5	NA	9.75	NA
H/O delayed tooth eruption in parents				
Known	2(12.5%)	7(50%)	1(12.5%)	3(42.8%)
Unknown	14	7	7	4
Intake of vitamin D	16	11	2	2
Dose				
400 IU	4	1	1	2
600 IU	3	4	1	0
1000 IU	9	6	0	0
Duration				
<3 months	10	8	3	3
0-9 months	6	6	4	2
Sunlight exposure				
<1 hr/week	12	10	6	4
1-2 hr/week	4	3	2	1
>2 hr/week	0	0	0	0
Feeding				

EBF	14	11	6	5
Formula feeds	2	3	2	2
Weaning				
4.5-5 months	3	2	2	1
>6 months	11	9	4	4

Reference

1. Zhang X, Beck P, Rahemtulla F, Thomas HF. Regulation of enamel and dentin mineralization by vitamin D receptor. *Front Oral Biol* [Internet] 2009 [cited 2015 Apr 7];13:102–9. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/19828979>
2. Speidel TD, Stearns G. The relation of vitamin D intake to the age of the infant at the time of eruption of the first deciduous incisor. *J Pediatr* [Internet] 1940 [cited 2015 Apr 7];17(4):506–11. Available from: <http://www.sciencedirect.com/science/article/pii/S0022347640801042>
3. Maurice Edward Shils MS. *Modern Nutrition in Health and Disease*, Lippincott Williams & Wilkins, 2006.;1155–63.