

Does Sun Exposure affect Serum Vitamin D [25(OH)D] level in Neonates?

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Introduction: Vitamin D is primarily obtained through exposure to sunlight. Recent studies have revealed that vitamin D deficiency exists in all age groups even in countries with abundant sunlight. It is observed for centuries, sunlight has been used for therapeutic purposes. Parents expose their infants to sunlight to treat neonatal jaundice, nappy rash or mostly to supply vitamin D for bone development due to health beliefs. Thus, our aim was to investigate the relationship between sun exposure and vitamin D level in neonates. For this, a secondary analysis of data was done in the latter part of a prospective study that investigated the relationship between maternal and infant vitamin D level during pregnancy and breast feeding.

Materials and Methods: Mothers (n=103) at 3-4 weeks of postpartum were interviewed. None of the mothers or babies received vitamin D supplementation in this cohort. Exclusion criteria were mothers already on vitamin D supplements, maternal complications such as pregnancy induced hypertension and gestational diabetes, premature infants and infants with congenital abnormalities. Sun exposure was quantified taking number of days and time of exposure per day into consideration. Vitamin D and parathyroid hormone (PTH) was measured using mini VIDAS automated immuno-analyzer and DRG intact-PTH Elisa kits respectively. Data were analyzed using SPSS software. Ethical clearance was obtained from the Ethics committee, University of Sri Jayewardenepura.

Results: Majority of (98.1%) infants in this population were exclusively breastfed. 86.4% of neonates were exposed to sun almost daily and mean sun exposure time was 10.8 ± 11.5

min/day (range from 0 – 69 min/day). Mean $\pm$ SD of neonatal serum vitamin D and PTH levels were 11.4 ± 5.6 ng/mL and 28.6 ± 23.0 pg/mL respectively. Most (88.3%) had insufficient level of vitamin D. Serum vitamin D levels showed a significant positive correlation ($r=0.212$; $p=0.032$) with duration of sun exposure. In contrast PTH did not correlate significantly with sun exposure or vitamin D levels.

Conclusions: In this population of neonates, vitamin D insufficiency is unexpectedly high. Sun exposure at early neonatal period increases circulating 25(OH)D. However, with potential harmful effects in addition to potential benefits of sun exposure those are known for years randomized control trials are recommended to investigate vitamin D supplementation during infancy.

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