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**DO FRACTURES CORRELATE WITH VITAMIN D LEVELS IN PRETERM INFANTS?**

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**Background and Object:** Vitamin D plays an important role in skeletal health. We previously reported a high prevalence (about 80%) of serum 25-hydroxy-vitamin D (25OHD) insufficiency in preterm VLBW infants. We aimed to evaluate the incidence of inpatient fractures noted in this population and any association with vitamin D levels.

**Methods:** Convalescent, stable VLBW (birth weight < =1.5kg) preterm (gestation < =32 weeks) infants, admitted to a tertiary referral NICU had serum 25-hydroxy-cholecalciferol (25-OH-D) measured using radio-immunoassay, prior to starting oral vitamin D supplements. All Xrays performed during inpatient stay were evaluated for the presence of fractures.

**Results:** 137 VLBW infants had 25-OH-D performed and all their Xrays reviewed. Their mean (+/-Standard deviation) gestation was 29.6+/-2.5 weeks, birth weight 1.3+/-0.4kg and vitamin D levels were 40.7+/-11.6nmol/l. 4 (2.9%) infants had fractures : 3 had long bone fractures and 1 had rib fractures. Their mean vitamin D levels were 34.6+/-10.9 nmol/l.

**Conclusions:** We have demonstrated that 80% of preterm VLBW infants have insufficient 25-OH-D levels during early postnatal life; but 25% remain insufficient at follow-up assessment. Four infants had fractures and all had decreased Vitamin D levels < 50nmol/l.

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**BODY COMPOSITION CHANGES IN EARLY POSTNATAL LIFE OF LATE PRETERM INFANTS**

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**Background and aims:** Late preterm birth has recently increased. Several reports suggest that preterm infants have limited compensatory mechanisms to adapt to the extrauterine environment. Body composition may contribute to the "programming process". Aim of the present study was to assess the body composition changes through the first postnatal weeks in a cohort of late preterm infants.

**Methods:** We conducted a prospective, observational study. Twenty-one infants (7 males) were included. Inclusion criteria: gestational age 34-36 weeks, singleton pregnancy, Caucasian parentage, born adequate for gestational age. Exclusion criteria: congenital/chromosomal, heart and brain diseases, necrotizing enterocolitis. Growth and body composition were assessed by an air displacement plethysmography system (PEA POD® Infant Body Composition System, LMI, USA) on the 5<sup>th</sup> postnatal day of life and at term corrected age. Data on body composition (expressed as percentage of fat mass) were analyzed by the Friedman test.

**Results:** Mean gestational age (weeks) and birth weight (g) were 35.5±0.68 and 2665 ±239, respectively. All infants were breast fed (human milk >50% of the daily volume intake). Percentage of fat mass significantly increased from the 5<sup>th</sup> day (7.15±3.76) of postnatal life to term corrected age (16.1±4.3, p< 0.001). Mean weight (g) at term corrected age was 3428±352.

**Conclusions:** Our data suggest that late preterm infants develop an increased adiposity as compared to full term infants. Further larger studies are required to investigate the long term health implication of this preliminary evidence.