

Longitudinal study of whole body bone mineral content (BMCT) by DXA in very low birthweight (VLBW) infants. A Lapillonne¹, PM Braillon², M Chambon¹, FH Glorieux³, BL Salle¹ (¹ *Department of Neonatology*; ² *Department of Rheumatology, Édouard-Herriot Hospital, Lyon, France*; ³ *Genetics Unit, Shriners Hospital, McGill University, Montreal, PQ, Canada*)

Dual energy X-ray absorptiometry (DXA) is a non-invasive, accurate and precise method for assessing bone mineral content (BMC). The introduction of this technique in the pediatric fields is recent. The low irradiation level allows longitudinal studies. New technical developments of DXA systems now provide the possibility to study the entire skeleton.

Twenty-five VLBW infants (mean gestational age \pm SD = 30.8 ± 2.6 weeks, mean birthweight \pm SD = $1\ 232 \pm 1\ 37$ g) (9 boys, 16 girls) were studied over a 6 month period. During the first 3 months of life, 10 infants received their own mother's milk enriched with a fortifier (Eoprotin), and the 15 others were fed a preterm formula (Premilumel). Then, they received a regular formula. All the babies received 1 500 UI per day of vitamin D3 during the first 2 months of life and then 1 000 UI per day up to 6 months of age. The scans were performed with a QDR 1000 W densitometer (HOLOGIC Inc, Waltham MA; pediatric software 5.47) at 3 months postnatal age (corrected gestational age of 42 ± 2.6 weeks) and 6 months postnatal age.

At 3 months of age the mean BMCT of the premature babies (43.3 ± 30.8 g of hydroxylapatite (HAP)) was significantly lower than that of full term newborns at birth (62.4 ± 18.3 g HAP). At 6 months of age, the infants had a mean value of BMCT of 168.6 ± 36.6 g HAP, which is comparable to the value of full term newborns at the same postnatal age.

There was no significant difference in BMCT according to diet at any time. Although

at 3 months of age, the infants fed fortified human milk had a higher mean BMCT (54.6 ± 22.9 g HAP) than those fed the preterm formula (35.8 ± 33.8 g HAP), the wide variation observed between 2 groups did not allow the difference to reach significance.

This study of the whole body BMC in VLBW infants, as assessed by DXA, demonstrated an osteopenia at 3 months of age. There was no significant diet influence. However, the mean BMCT value of the infants fed fortified human milk was higher than that of the infants fed a preterm formula. At 6 months of age, the BMC reached a value similar to that of full term newborns and there was no significant difference between the 2 diet groups.

Fat-free mass and autonomy of free-living elderly people. A Pradignac, JL Schlienger (*Hôpital de Haute-pierre, Service de médecine interne, 67098 Strasbourg, France*)

Preserving elderly people's autonomy is a real challenge in industrial eras. Many studies have emphasized the importance of maintaining a good level of fat-free mass to reach this goal. We studied the relationship between fat-free mass and functional or cognitive capacities of free-living elderly people.

We report the results of a survey carried out in the department of Bas-Rhin (the eastern part of France), concerning 226 males and 215 females, aged over 65 years without serious illness and free-living. They were randomly selected after stratification on sex, age and residence (rural or urban). For each subject, the ability to walk outside home (AWOH) was evaluated by the Gêronte scale, the cognitive functions by the minimal state examination (MMSE), the fat mass by the body mass index (BMI) and fat-free mass by the brachial muscular circumference (BMC) derived from Jelliffe's