Bone Ultrasound Velocity Curves of Newly Born Term and Preterm Infants

Y. Littner, D. Mandel, F.B. Mimouni, S. Dollberg

Department of Neonatology, Lis Maternity Hospital and Sackler School of Medicine, Tel Aviv University, Tel Aviv, Israel

BACKGROUND
Ultrasound velocity (speed-of-sound [SOS]) has been proposed as a non-invasive method of evaluation of bone status in infants. We hypothesized that SOS correlates with both gestational age and birth weight.

METHODS
We measured SOS within the first 96 hours of life at the right tibial midshaft location in 73 neonates ranging in gestational age from 25 to 41 weeks, and in birth weight from 825 to 3880 grams. We used the Sunlight Omnisense 7000p device (Tel Aviv, Israel). Results are expressed as mean±SD; statistical analyses included linear regression and computation of 95% CI regression lines; p<0.05 was considered significant.

RESULTS
There was, as hypothesized, a significant correlation between gestational age (or birth weight) and SOS. There were no significant differences between males and females. Ninety-five percent confidence intervals were established.

CONCLUSIONS
These data may be used as reference ranges for further studies.

*Published in the Journal of Pediatric Endocrinology and Metabolism, 2003, Jan;16(1):43-7*