Maternal Sun Exposure May Aid Infants' BMD

BY NANCY WALSH
New York Bureau

LIVERPOOL, ENGLAND — Maternal exposure to sunlight in late pregnancy can apparently exert a beneficial influence on the offspring's bone mineral density in later life, according to analysis of data from a longitudinal study of more than 17,000 Korean patients.

Peak bone mass contributes to bone strength in later life, and although the peak is reached in early adulthood it is influenced by factors in early life, Dr. Nicola J. Goodson said at the annual meeting of the British Society for Rheumatology. For example, it has been shown that vitamin D supplementation during the first year of life is associated with higher bone mineral content in prepubertal children, she reported.

Patients in the Korean study were classified as having antenatal exposure if their birth months were between May and November and they had at least 1 neonatal month of exposure to sunlight.

Antenatal factors such as maternal and fetal vitamin D exposure also appear to contribute. Most fetal skeletal calcium accumulation occurs in the third trimester of pregnancy, and placental calcium transport is influenced by maternal vitamin D, said Dr. Goodson of University Hospital Aintree, University of Liverpool (England).

It has not yet been determined, however, whether birth month—either influenced by antenatal or postnatal exposure to ultraviolet B (UVB) sunlight—affects the offspring's later life risk for low bone mineral density (BMD), she commented.

One study found that Korean babies born in winter had lower bone mineral concentration than did those born in summer (J. Pediatr. 1998;132:421-5), she noted.

"In the United Kingdom the main dietary sources of vitamin D are fish and fortified margarine, but more than 90% of the vitamin is obtained by casual exposure to the sun, and because of the latitude the majority of the population is vitamin D deficient for much of the year," said Dr. Goodson.

This is in contrast to Canada and the United States, where milk is fortified with the vitamin, she noted.

To determine if variations in vitamin D levels resulting from either maternal exposure to sunlight during late pregnancy or neonatal exposure during the first 3 months of life could be associated with BMD in later life, birth records and dual energy x-ray absorptiometry (DXA) scan results for a large cohort of patients were examined.

All patients from the Morecambe Bay catchment district who had DXA scans between 1992 and 2004 were included in the study. The cohort included 15,042 women and 2,160 men whose mean age was 62 years.

At the latitude of this Korean district, 54 degrees north, the months with adequate sunlight are May through September. Patients therefore were categorized as having infant sunlight exposure if their birth months were between March and September and they could be expected to have at least 1 month of exposure to ultraviolet B light in the first 3 months of life.

They were classified as having antenatal exposure if their birth months were between May and November and they had at least 1 neonatal month of exposure to sunlight, explained Dr. Goodson.

Overall, 51% of patients had BMD in the normal range, and, as expected, women had lower mean T scores, at –1.7, than did men, at –0.91, she said.

Analysis of sunlight exposure in the first 3 months of life and normal BMD, after adjustment for age at the time of the DXA scan, found no significant association, with an odds ratio (OR) of 1.

In contrast, for those categorized as antenatal exposure, there was a modest association with normal bone mineral density in adulthood, with an OR of 1.16, Dr. Goodson said.

Those patients who had antenatal sunlight exposure also were less likely to have osteopenia or osteoporosis: Those who were osteopenic had a 12% reduced odds of antenatal exposure and those who were osteoporotic had a 19% reduced odds of antenatal exposure, she said.

These associations were only seen among women.

In a separate analysis for those whose DXA scans were done before age 50, again there was no association of early life sunlight exposure in either men or women. However, in these younger patients there was a very strong association of early life, rather than antenatal, exposure with osteoporosis. "Those patients in the osteoporotic range had a 49% reduced odds of having a birth month that enabled antenatal exposure to UVB," she said.

In summary, she said, adult BMD was associated with birth month in this unselected DXA cohort.

"These findings suggest that maternal vitamin D levels should be optimized, particularly during the third trimester, either by diet or by safe UV exposure, and this may be particularly important in the U.K., where vitamin D deficiency is very common," Dr. Goodson said. ■

Perinatal Mortality Stays Higher In Women Planning Home Births

BY ELIZABETH MECHCATIE
Senior Writer

Intrapartum-related perinatal mortality risks have fallen, but not among women who attempt to undergo home birth, according to an analysis of birth data in England and Wales between 1994 and 2003.

The analysis, which the researchers stressed had "substantial limitations and should be treated with caution," indicated that although the intrapartum-related perinatal mortality (IPPM) rate overall was generally low among the women who "booked" or intended to have a home birth, IPPM rates were significantly higher in subsets of women who attempted to give birth at home.

The findings were reported in the April 2 issue of BJOG: An International Journal of Obstetrics and Gynaecology.

The rate of IPPM (defined as deaths from intrapartum "asphyxia," "anoxia," or "trauma," and including stillbirths and deaths that occurred in the first week) was highest among the women who planned to have a home birth but had to transfer their care to a hospital during pregnancy or labor, wrote Dr. Rintaro Mori and associates at the National Collaborating Centre for Women's and Children's Health, London.

Overall, 4,991 intrapartum perinatal deaths occurred among 6,314,315 births. The IPPM rate was 0.79 per 1,000 births, compared with 0.96 per 1,000 actual home births (intended and unintended home births combined) and 1.28 per 1,000 intended home births (those who completed a home birth or had planned to deliver at home but had to transfer).

They also looked at the IPPM rate in three subgroups. The rate was 0.48 per 1,000 births among those who intended to have home birth and completed it at home, compared with 6.05 per 1,000 births among those who planned to have a home birth but transferred their care to a hospital and 1.24 per 1,000 births among those who did not intend to have a home birth (BJOG 2008; 115:554-8).

"Although the women who had intended to give birth at home and did so had a generally good outcome, those requiring transfer of care appeared to do significantly worse," with IPPM rates "well in excess of the overall rate," the authors observed, noting that they could not determine whether the women had been transferred during pregnancy or at the onset of labor.

The investigators speculated that the improvement in overall IPPM rates might have been due to improvements in clinical care.

The authors listed limitations of the study, including selection bias and potential confounding factors, such as the likelihood that women with risk factors would be advised to plan a hospital birth.

Ideally, they wrote, it would be best to compare the IPPM rates for women who planned a home birth to women at the same risk level who planned to deliver in the hospital, but these data are not available.

The results "certainly indicate the need for further prospective research to evaluate the relative safety of home birth," they wrote, adding that it was "vital" to collect data prospectively to accurately determine intended and unintended home birth rates, and when and why transfer to a hospital takes place.

Dr. Mori, the lead author of the study, is now at the Osaka (Japan) Medical Center and Research Institute for Maternal and Child Health. ■

Vaginal Delivery Found to Increase Likelihood of Pelvic Organ Prolapse

SAVANNAH, GA. — Vaginal delivery—but not cesarean section delivery—appears to confer increased risk of stage 2 pelvic organ prolapse, based on the results of a study of almost 300 women.

"Vaginal parity—and not parity alone—was found to be a risk factor for prolapse severity," wrote Dr. Lieschen Quiroz, of the obstetrics and gynecology department at Johns Hopkins Bayview Medical Center in Baltimore, and her colleagues regarding their study, which was presented as a poster at the annual meeting of the Society of Gynecologic Surgeons, jointly sponsored by the American College of Surgeons.

Each vaginal delivery was associated with a 35% increase in the risk of stage 2 or greater pelvic organ prolapse, while C-sections were not.

The researchers included all women seeking outpatient gynecologic and urogynecologic care at five locations in Baltimore.

Women were excluded if they either were pregnant or were not sexually active. Demographic data and childbirth history were collected.

The women also underwent Pelvic Organ Prolapse Quantitative (POP-Q) examination.

POP-Q data and childbirth history were available for 299 women.

Mean parity increased with increasing prolapse stage—from 1.4 for stage 0 to 3.1 for stage 3.

Age was also statistically associated with increasing prolapse stage.

Race, body mass index, and hysterectomy status were not associated with increasing prolapse stage.

For each vaginal birth, the relative odds ratio for having stage 2-4 prolapse was 1.35; for each C-section birth, the relative odds ratio for having stage 2-4 prolapse was 0.9. The findings suggest that delivery method may be a modifiable risk.

Dr. Quiroz stated that she had no relevant financial relationships to disclose.

—Kerri Wachter