

# Maternal Bariatric Surgery Yields Healthier Kids

BY BRUCE JANCIN

GRAPEVINE, TEX. — Obese women who have bariatric surgery prior to pregnancy have less complicated gestations and their children are markedly less obese than are siblings born prior to mom's surgery, according to a Canadian study.

"Less obesity is not even the most important finding—it's the improvement in their metabolic condition. Children born after their mother's surgery had 30% less insulin resistance compared to their brothers and sisters born before the surgery. Regarding other elements of the metabolic syndrome, they also had a 20% decrease in triglyceride levels, their HDL was increased by 12%, and their waist circumference to height ratio was 11% better," Dr. Picard Marceau reported at the annual meeting of the American Society for Metabolic and Bariatric Surgery.

The implication of these findings is that the propensity to develop obesity and metabolic syn-

drome is transmitted through the generations not only via genetic factors, but also epigenetically through the intrauterine environment, said Dr. Marceau of Laval University, Quebec City.

"Morbid obesity is a congenital and treatable disease," he said. "The emphasis should be shifted from preventing undernutrition in pregnancy to preventing overnutrition in our affluent society. Surgery before pregnancy is a good option."

He and his coworkers studied 37 very obese mothers who collectively gave birth to 56 children prior to undergoing a biliopancreatic diversion with duodenal switch (BPD) for weight loss and to another 54 children afterward. The investigators added another 10 morbidly obese women who had all 23 of their children prior to the BPD and 10 others who had all 19 of their children post surgery. Children born before the mother's bariatric surgery were prospectively followed on average to age 19 years, while those born post surgery were followed to age 10.

The mothers' preoperative body mass index averaged 48.5 kg/m<sup>2</sup>. At 15 years after surgery, it was 31.4 kg/m<sup>2</sup>. Blood glucose levels at follow-up were 20% lower than presurgically, their triglycerides and LDL levels were down by more than 50% each, and HDL was up by 40%.

Pregnancies prior to bariatric surgery were marked by 12 cases of gestational diabetes, 9 of preeclampsia, and 15 of hypertension; pregnancies after surgery had none. Gestational weight gain averaged 13.8 kg/m<sup>2</sup> in the presurgical period and 6.8 kg/m<sup>2</sup> in the postsurgical era.

The birth weight of the children born after mom's surgery was 17% lower than that of their siblings born prior to surgery. The incidence of macrosomia was reduced by 86%.

Strikingly, the prevalence of severe obesity as defined by a BMI above the 90th percentile for age and gender was 75% less in the children born after the

mother's surgery than in those born before.

The impact of the salutary postsurgical intrauterine environment differed somewhat in boys and girls. In boys, it was



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manifest mainly as less weight gain; boys born after the mother's surgery had an 86% lower prevalence of obesity than did their older brothers. In contrast, the main effects noted in girls born after the mother's surgery were a 40% reduction in insulin resistance and a 35% decrease in percent body fat, compared with their sisters born presurgically.

Interviews with the mothers indicated that the metabolic and weight differences between their older and younger children were not due to lifestyle

changes; 80% of the moms said they did not change the quantity or quality of foods given to their children in the wake of their bariatric surgery. Plus, the differences between the two populations of children were noted from birth.

"The importance of this research cannot be overstated," said discussant Bruce M. Wolfe. "The findings contribute tremendously to our understanding of the causes of obesity."

Dr. Wolfe, professor of surgery at Oregon Health and Science University, Portland, expressed concern about nutrient deficiencies leading to fetal growth and developmental issues after bariatric surgery.

Dr. Marceau reported that there had been no problems with malnourishment in the children born after maternal surgery. Folic acid and vitamin B<sub>12</sub> are unaffected by the operation. Pregnant patients who had the operation simply took a prenatal multivitamin.

The study was supported by the Canadian Institute of Health Research. ■

## Dollar Store Pregnancy Tests Are Worth the Buck

BY BETSY BATES

CHICAGO — Ultra-low-cost pregnancy tests seem able to detect human chorionic gonadotropin (HCG) at the same low levels as tests costing many times the price.

What's more, their results may be easier to read, according to a sampling of pregnancy test kits purchased from dollar stores throughout the Lehigh Valley, Pa., region by Dr. Sunaina Sehwhani and associates at St. Luke's Hospital and Health Network in Bethlehem, Pa.

When 27 dollar store tests were compared with 27 QuickVue pregnancy tests (Quidel Corp.) using urine-purified HCG, all were positive at levels of 25 mIU/mL and above, the standard sensitivity for pregnancy tests used in physicians' offices and clinics, Dr. Sehwhani reported at the annual meeting of the American College of Obstetricians and Gynecologists.

Introduced to the commercial market in 1976, home pregnancy kits have declined in price, from an average of \$15-\$20 in 1999 to \$6-\$10 now for standard kits.

Earlier-response kits such as First Response or Walgreens' Early Result cost a bit more (\$13-\$20) and are advertised as sensitive at 6 days post

ovulation and 99% accurate at the day after a missed period or 2 weeks post ovulation.

Dr. Sehwhani and associates found that dollar pregnancy tests were 100% accurate at 25 mIU/mL of HCG and above, identical to the QuickVue pregnancy test. In fact, two of five that were tested at a lower level of HCG (20 mIU/mL) also were positive.

The dollar kits included in the study were marketed as New Choice, U-Check, and MD Quality, all manufactured by SCI International Inc.

Both the QuickVue and dollar store tests were read for accuracy by two independent observers at 3 and 10 minutes, as directed. They were also assessed for ease of interpretation by five independent observers, four of whom selected the dollar store tests as more visually interpretable.

"The dollar store pregnancy tests appeared able to detect HCG at the same low levels as the QuickVue urine pregnancy test, and also to be easier to read than the more expensive test," Dr. Sehwhani said.

The QuickVue pregnancy tests were donated by the women's health center of St. Luke's Hospital and Health Network for the study. The research team made no other relevant financial disclosures. ■

## Contraceptive Types Don't Differ In Effect on Atherogenic Lipids

BY NEIL OSTERWEIL

BOSTON — The route of hormonal contraceptive administration—transdermal or oral—does not make a difference in terms of the hormone's effect on plasma lipids and lipoproteins, according to the findings of a randomized crossover trial.

In the study, women on either a standard or extended-release contraceptive patch had higher levels of HDL cholesterol and its constituent apolipoprotein A1 (ApoA-1), compared with when they were taking oral contraceptives; however, the effects of patch and oral formulations on atherogenic lipoproteins were similar, Dr. Elizabeth Chan reported at a symposium sponsored by the International Atherosclerosis Society.

"Patch contraception results in 60% higher estrogen levels than oral contraception. It is the estrogen/progestin ratio that determines the overall lipoprotein effects in hormonal contraception formulations," according to Dr. Chan, of the University of Washington Division of Cardiology in Seattle, and her colleagues.

Estrogen is known to increase triglycerides and HDL cholesterol, and progestin has been shown to increase LDL and decrease HDL, the authors explained. If differences in these effects do exist among the various administration methods, the cumulative effect could be considerable given women often remain on hormonal contraceptives for decades.

For the study, 35 healthy premenopausal women had a 2-month phase-in period on an oral contraceptive (Ortho-Cyclen; 35 mcg ethinyl estradiol and 0.25 mg norgestimate) and were then randomly assigned in a three-way crossover design to 2 months on either the oral contraceptive, a patch formulation (Ortho-Evra; approximating a daily dose of 20 mcg ethinyl estradiol and 150 mcg norelgestromin), or an extended-release patch (Extended Ortho-Evra). A total of 31 women completed all three treatments and were available for the final analysis.

The investigators found that the use of the standard patch formulation resulted in significantly higher levels of favorable lipids—HDL and ApoA1—compared with oral administration. The extended patch also had a significantly greater effect on HDL and ApoA1, compared with the standard patch.

But for all other lipid parameters—LDL, non-HDL cholesterol, apolipoprotein B, and triglycerides—there were no significant differences among the three contraceptive formulations.

The findings "do not provide compelling evidence for selection of one method of hormonal contraception versus another regarding their effects on lipids and lipoproteins," the authors said.

The researchers reported having no conflicts of interest related to the study, which was supported by Ortho-McNeil, maker of the contraceptives tested. ■