

# HAPO Data Link High Glucose to Preeclampsia

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GLASGOW, SCOTLAND — Fasting plasma glucose levels in pregnant women are associated with the development of preeclampsia, according to the latest data to be released from the Hyperglycemia and Adverse Pregnancy Outcome study.

Principal investigator Dr. Boyd L. Metzger gave a sneak preview of the latest results from the 7-year multinational trial, known as HAPO, during the annual professional conference of Diabetes U.K.

The new findings were on the secondary outcomes of the study. All three measures of glucose control—FPG at 1 hour and at 2 hours and the oral glucose tolerance test—were associated with preeclampsia. After adjusting for potentially confounding factors, the data



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DR. METZGER

showed that the odds of developing preeclampsia were 1.2-1.28 times higher for every 1-point standard deviation increase in maternal glucose concentration.

The key findings are the same as those previously released “in that outcomes are very strongly related to the mother’s blood sugar level during her pregnancy and that the effects seem to occur at levels that are lower than we’ve been diagnosing and treating gestational diabetes at in the past,” Dr. Metzger of Northwestern University, Chicago, said in an interview.

But the new data show how the effects of maternal glucose during pregnancy appear to extend beyond an increased chance of having a high-birth-weight baby, fetal hyperinsulinemia, and delivery by cesarean section, and into outcomes such as preeclampsia. However, there was no specific number at which the risk of these adverse outcomes started to increase, he said. Although adverse outcomes appeared to occur at fasting plasma glucose (FPG) levels as low as 4.0-4.9 mg/dL, the data did not seem to agree as far as what level was needed to experience one adverse outcome over another.

Four outcomes were designated as “primary” at the start of the study, and were reported last June. These included the frequency of having a high-birth-weight baby, a first cesarean section, neonatal hypoglycemia, and fetal hyperinsulinemia. The last was assessed by measuring the level of C-peptide in the cord blood; a high level was defined as greater than the 90th percentile of what would be expected. Of these, Dr. Metzger said that there were strong associations between maternal glucose levels and both birth weight and fetal hyperinsulinemia; there were milder associations with having a first cesarean section and neonatal hypoglycemia.

“The relationship between maternal

blood glucose and the outcome of [a woman’s] pregnancy appears to be continuous across the whole spectrum of adverse outcomes, so how much risk is too much risk?” commented Dr. Metzger. This highlighted just one of the problems of applying the HAPO data as they stand to clinical practice. “If the clinical assessment of this information is that we should be intervening to prevent these risks, then we are going to have to lower the values that we have traditionally been using” to diagnose

women with gestational diabetes—which will mean a that lot more women will be diagnosed with the disorder, he said.

This was the first time the HAPO findings have been discussed at a professional diabetes meeting outside the United States since their presentation at the American Diabetes Association 67th Annual Scientific Sessions last June.

The investigators are just starting to decipher all the data gathered from the more than 23,000 women who participated in the

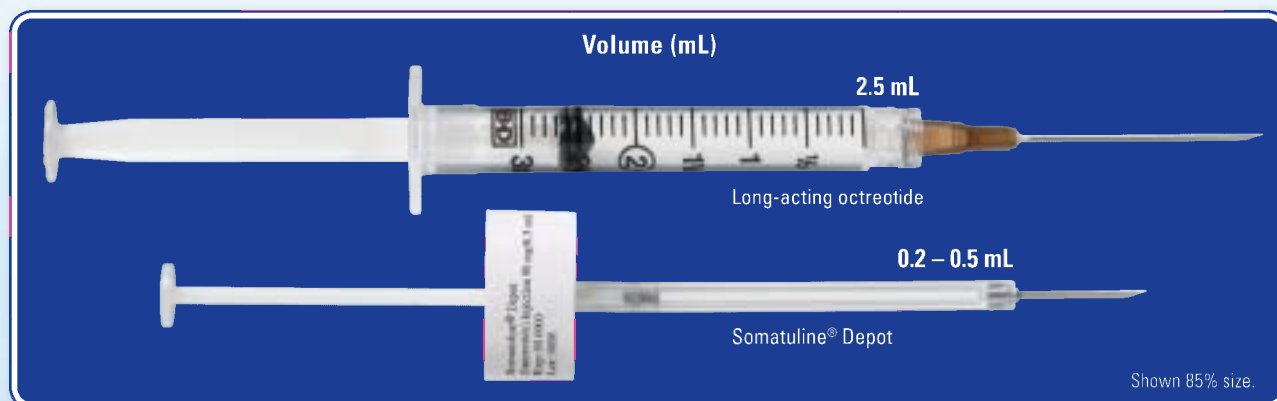
observational study, and it could be some time before there is an agreement on what these results mean for the diagnosis and management of gestational diabetes. There are also further analyses to be performed, such as the effect of maternal glucose on insulin sensitivity and triglyceride levels.

The first steps toward achieving a consensus on the clinical significance of the HAPO data will be made during a stand-alone meeting to be held in Pasadena, Calif. in a few months. ■

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