# Gestational Diabetes Raises Risk of CV Disease

**VITALS**

**Major Finding:** After adjustment for hypertension, smoking, BMI, parity, education level, and ethnicity, risk for CVD events following pregnancy was elevated by an odds ratio of 1.50 for GDM, 5.15 for chronic hypertension, and 2.24 for smoking.

**Data Source:** Case-control study of 2,660 CVD event cases and 13,357 matched controls who had given birth to at least one child.

**Disclosures:** Dr. Schwarcz disclosed that he has received lecture fees and has conducted clinical trials for Sanofi-Aventis, Novo-Nordisk, and AstraZeneca.

BY MIRIAM E. TUCKER

FROM THE ANNUAL MEETING OF THE EUROPEAN ASSOCIATION FOR THE STUDY OF DIABETES

LISBON – Women with a history of gestational diabetes had an overall 50% elevated risk for cardiovascular events later in life, with a doubled risk among those who were overweight, in a large, case-control, population-based Swedish study.

It is well known that women who have gestational diabetes in pregnancy are at increased risk for type 2 diabetes later in life, but the relationship between gestational diabetes mellitus (GDM) and later cardiovascular disease (CVD) has been less well studied. In this analysis, increased risk for CVD among women with previous GDM was significant among women with body mass indexes (BMIs) of at least 25 kg/m$^2$, but not below. Moreover, hypertension and smoking during pregnancy were stronger risk factors than GDM for later CVD.

"Preventive strategies after pregnancy might need to be individualized depending on each woman's characteristics and risk profile," said Dr. Erik Schwarcz of University Hospital Orebro, Sweden.

Cases in the study, which used data from Swedish quality registers from 1991 through 2008, were 4,590 women diagnosed with cardiovascular death or a first cardiovascular event – ischemic heart disease, ischemic stroke, peripheral arterial disease, or atherosclerosis – and who gave birth to at least one child during the study period. Those women were each matched with about five age-matched controls – total 22,398 – who did not have cardiovascular disease who gave birth to a child during the same year. Complete data on BMI and smoking were available for 2,660 cases and 13,357 controls.

**'Preventive strategies after pregnancy might need to be individualized.'**

DR. SCHWARCZ

At the time of the CVD event, the cases had a mean age of 41 years (range 19-61), with a mean of 9 years between the pregnancy and the event. There were 130 deaths among the 2,660 cases, compared with just 2 in the 13,357 controls.

GDM history was present for 2.4% of cases and 1.2% of controls, a significant difference. Also significantly increased among cases were chronic hypertension (2.1% vs. 0.3%), smoking (35.3% vs. 18.1%), non-Nordic ethnicity (14.1% vs. 11.5%), mean BMI (25.4 vs. 23.9), and low education (23.4% vs. 15.1%).

After adjustment for hypertension, smoking, BMI, parity, education level, and ethnicity, all of the risk factors remained significant except for non-Nordic ethnicity, with odds ratios of 1.50 for GDM, 5.15 for chronic hypertension, and 2.24 for smoking. With a BMI of 20-25 as the referent, a BMI of 25-29 gave an odds ratio of 1.32, while a BMI of 30 or greater doubled the risk (OR, 2.00).

When divided into normal weight (BMI 20-24) versus overweight (BMI 25 or greater), only overweight women had increased risk for CVD (OR, 2.35), while there was no excess CVD risk among those with normal BMI (0.48). When stratified for smoking, GDM was not a risk factor for CVD. In other words, GDM didn't add any risk above and beyond that of smoking, Dr. Schwarcz explained. ■