Incident cardiovascular disease in women with type 1 or type 2 diabetes by history of hypertensive disorders of pregnancy

S. Timpka¹, M. Pihlsgard¹, S. Enhorning¹, K. Mattsson¹

¹Lund University, Malmo, Sweden

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Background: Whereas a history of a hypertensive disorder of pregnancy is associated with incident cardiovascular disease, the extent to which this is relevant for women with diagnosed diabetes is unknown.

Purpose: To analyse the risk of incident cardiovascular disease by a history of hypertensive disorders of pregnancy in women with diagnosed type 1 or type 2 diabetes and to examine the extent to which any associated risk was contingent on the level of clinical risk factor control.

Methods: By using nationwide register data (The Swedish Medical Birth Registry and The Swedish Diabetes Registry) between 1998 to 2021, we retrieved information on pregnancy history and cardiovascular disease (myocardial infarction, stroke, and heart failure), in all women with diabetes aged 18 to 69 years who had their first delivery registered. Risk of incident cardiovascular disease was estimated using Cox regression models. In further analyses, we categorized patients by number of risk factors (glycated hemoglobin and low-density lipoprotein cholesterol levels, albuminuria, smoking, and blood pressure) within target ranges.

Results: In total, 1804 (19.7%) of 9179 women with type 1 diabetes, and 5311 (10.6%) of 50,244 of women with type 2 diabetes, had their first delivery complicated by a hypertensive disorder of pregnancy. The risk for any cardiovascular disease event was higher in women with a previous hypertensive disorder of pregnancy in both diabetes groups: for type 1 diabetes the adjusted hazard ratio was 1.25 (95% confidence interval [CI]: 1.03 – 1.52) and for type 2 diabetes 1.20 (95% CI: 1.07 – 1.35). The risk decreased stepwise by improved risk factor profile: from a 7-fold and 4-fold higher risk in type 1 and type 2 diabetes patients, respectively, compared to women with diabetes but without a hypertensive disorder of pregnancy, to negligible risk differences (both groups) with adequate risk factor control.

Conclusions: A history of hypertensive disorder of pregnancy was associated with increased risk of incident cardiovascular disease in women with diabetes, but not in those with adequate risk factor control. Our findings emphasise the importance of preventive care in these patients, as well as a health care provider with access to information about reproductive history.