

## LETTERS

## A case of type 1 diabetes mellitus after gestational diabetes

Dear Editor,

Gestational diabetes mellitus (GDM) affects 2-17 % of all pregnancies<sup>1,2</sup> and is associated with an increased risk of future type 2 diabetes mellitus (T2DM). There is also a risk of type 1 diabetes (T1DM) after GDM, but the incidence of T1DM is almost ten times lower<sup>3</sup>.

We present the case of a female patient with GDM diagnosed with T1DM four years post-partum; the 37-year-old woman who had two previous births without GDM was diagnosed with GDM in the 24th week of her third pregnancy. The diagnosis was made with an 75g-oral-glucose-tolerance-test (OGTT) (glucose levels: fasting 84 mg/dl, one-hour 206 mg/dl, two-hour 100 mg/dl). Her body-mass index (BMI) was 33.6 kg/m<sup>2</sup>. She was treated with lifestyle modification and human insulin. She gave birth in the 39<sup>th</sup> week with no perinatal complications. Two months post-partum, the 75g-OGTT revealed diabetes (glucose levels: fasting 130 mg/dl, one-hour 158 mg/dl and two-hour 90 mg/dl). Glycated hemoglobin (HbA1c) was 5 %. Fasting glucose and HbA1c were then measured every three months. The HbA1c remained <5.8 % without antidiabetic medication over three years. Three years after delivery and after a weight gain of 10 kg, the HbA1c was measured 6.3 %. Weight loss with diet and physical activity were recommended. After 16 months, the patient returned with typical symptoms of polyuria, polydipsia, a weight loss of 10 kg, and visual disturbances. The HbA1c was 11 % and the autoantibodies were positive: glutamic-acid decarboxylase of 298 IE/ml (ref. <10) and tyrosine-phosphatase of 5 U/l (ref. <1.0). Moreover, C-peptide was 2.1 ng/ml (ref. 0.9-7.1) and insulin level was 4.46  $\mu$ IU/l. Urine ketones were negative. The diagnosis of T1DM was made.

It has been proposed that two-hour-OGTT glucose of 214 mg/dl in pregnancy could predict T1DM after GDM<sup>3</sup>. Moreover, age less than 30 years, presence of ketones, early need for insulin, presence of other autoimmune diseases, and positive autoantibodies during GDM have been identified as risk factors of T1DM post-partum<sup>1,2</sup>. Screening for autoantibodies in GDM is only recommended when two or more features, namely young age, low BMI, early insulin therapy, or ketones, are present<sup>2</sup>. In our case, the two-hour-OGTT glucose was 100 mg/dl. Our patient was not screened for autoantibodies either during pregnancy or post-partum since the abovementioned criteria were not fulfilled. Indeed, given the high BMI, the absence of ketones, the fact that no autoimmune disease was reported, and the age of 37, T2DM at two months post-partum appeared the most likely diagnosis. T1DM was diagnosed much later.

This case has an educational value, highlighting the need for closely monitoring women with a history of GDM after pregnancy, especially those treated with insulin during GDM. Notably, an individualized approach and the active participation of women in the decision-making is necessary<sup>4</sup>. Of note, if diabetes mellitus is diagnosed after GDM, autoantibodies screening may be useful also for women with an atypical phenotype (e.g., age over 30 years, high BMI, absence of ketones, absence of an autoimmune illness) in order to early diagnose a T1DM.

**Keywords:** Gestational diabetes, type 1 diabetes mellitus

**Conflict of interest**

Authors declare no conflict of interest.

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