Glycated haemoglobin A1c as a predictor of preeclampsia in type 1 diabetic pregnant women: A systematic review and meta-analysis

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Objective: To examine the relationship between the increase of glycated haemoglobin A1c (HbA1c) levels and the risk of preeclampsia in pregnant with type 1 diabetes mellitus; and to determine from which trimester the increase of HbA1c levels better predicts the risk of suffering preeclampsia in type 1 diabetic pregnant women. Methods: We systematically searched MEDLINE, EMBASE, the Cochrane Central Register of Controlled Trials, the Cochrane Database of Systematic Reviews and Web of Science databases, from inception to May 2017, for observational studies addressing the association of HbA1c levels with preeclampsia. Fixed effects models were used to compute pooled estimates of odds ratio (OR) and respective 95% confidence intervals (95% CI) for preeclampsia in type 1 diabetic pregnant women. Additionally, subgroup analyses were performed based on pregnancy trimester. Results: Five published studies were included in the systematic review and meta-analysis. There was an increase in the risk of preeclampsia with a 1% increase of HbA1c during pregnancy (OR = 1.38; 95% CI 1.26?1.52, I2=0.0%). When analyses were performed based on pregnancy trimester to estimate the risk of preeclampsia with a 1% increase of HbA1c, pooled OR estimates were 1.37 (95% CI 1.24?1.51, I2=0.0%) for the first trimester and 1.67 (95% CI 1.44?1.93, I2=0.0%) for the second/third trimester. Conclusion: HbA1c is a reliable predictor of preeclampsia in type 1 diabetic pregnant women. Our findings highlight the importance of including HbA1c measurements in the first antenatal visit to control the risk of preeclampsia in pregnant women. Systematic review registration: PROSPERO: CRD42017058394. © 2018

HbA1c

Preeclampsia

Pregnancy

Type 1 diabetes mellitus

hemoglobin A1c

biological marker

glycosylated hemoglobin

Article

first trimester pregnancy

human

insulin dependent diabetes mellitus

meta analysis

odds ratio

prediction

preeclampsia

pregnancy

priority journal

reliability

risk assessment

second trimester pregnancy

systematic review

third trimester pregnancy

blood

female

metabolism

predictive value

preeclampsia

pregnancy

pregnancy diabetes mellitus

prenatal diagnosis

Biomarkers

Diabetes Mellitus, Type 1

Female

Glycated Hemoglobin A

Humans

Pre-Eclampsia

Predictive Value of Tests

Pregnancy

Pregnancy in Diabetics

Prenatal Diagnosis