Article Navigation

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156-LB: New Gestational Diabetes Mellitus Risk Algorithm FREE

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Background and Objective: GDM is associated with life-long adverse outcomes for mother and baby, and its incidence is increasing. Markers beyond clinical factors are needed to identify women at high risk and catalyze early preventive interventions. Our aim was to develop a risk assessment algorithm that integrates genetic and clinical variables.

Methods: We analyzed a retrospective cohort of 711 women from Hospital Clínico San Carlos (HCSC, Madrid, Spain) , with 425 control pregnancies and 286 GDM cases diagnosed per IADPSG criteria. The HCSC cohort was randomly divided into a training/development dataset (70% of cohort) for algorithm development and a test dataset (30% of cohort) for validation. In addition, we tested the model in a cohort of 157 women (89 controls, 68 cases diagnosed per NDDG criteria from Hospital Cruces (Bilbao, Spain) and in a cohort of 416 women (346 controls, 70 cases per IADPSG criteria from HMPMPS, México) . A total of 114 SNPs were selected for this analysis after exhaustive exploration of the databases published to date of SNPs associated with GDM. The SNPs were selected based on their predictive power and population frequency, with the following criteria: OR>1.2, RAF>0.20, p<1×10-5. Discrimination and calibration of risk scores were assessed using the receiver operating characteristic (ROC) curve in the internal and the external validation groups.

Results: The algorithm provided a risk score for GDM, integrating 10 SNPs, maternal age, and pregestational BMI. In the training dataset the AUC was 0.74, sensitivity of 77% and specificity of 64%. AUCs in the HCSC, UAEM and Cruces validation sets were 0.71, 0.70 and 0.62 respectively.

Conclusions: This new tool for GDM risk assessment suggests that the utilization of genetic markers in combination with clinical characteristics may improve GDM risk evaluation and accelerate adoption of prevention interventions. Our study also highlights the importance of applying consensus criteria for the diagnosis of GDM.

Disclosure

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