



XL COMU Awards 2021 – Clinical

The impact of prediabetes in the first trimester of pregnancy on the incidence of gestational diabetes

Beatriz dos Santos Luz, Rayanne Pereira Cabral*, Gustavo Vieira Souza*

Universidade Estadual Paulista “Júlio de Mesquita Filho” (Unesp), Faculdade de Medicina de Botucatu (FMB).

*Orientador

ABSTRACT: *Introduction:* Prediabetes (PD) outside of pregnancy is a condition reflecting a significant loss of glucose tolerance, characterized in the laboratory by fasting glucose between 100 and 125 mg/dL or 2 hour glucose in the 75 g Oral Glucose Tolerance Test (OGTT) between 140 and 199 mg/dL or by HbA1c levels between 5.7%-6.4% and is associated with an increased risk of developing type 2 diabetes. The development of gestational diabetes mellitus (GDM) during pregnancy, characterized by a fasting blood glucose between 92 and 125 mg/dL or an impaired OGTT value of 75 g between 24th and 28th weeks, is another condition that increases the risk of perinatal complications such as preeclampsia, cesarean section rate, macrosomia, and also the development of type 2 diabetes after delivery. Determining the prevalence of women diagnosed with prediabetes at the beginning of prenatal care and its association with the diagnosis of GDM is therefore of great importance for clinical, gynecological and obstetric care. *Objective:* the aim of the study is to determine the prevalence and association of prediabetes in the first trimester of pregnancy with the development of gestational diabetes. *Methodology:* It was carried out in the Clinical Hospital of Botucatu Medical School. Retrospective cohort study involving eligible pregnant women who underwent fasting glucose test (FG) and glycated hemoglobin (HbA1c) test up to the 14 th week of gestation without previous diagnosis of diabetes mellitus, and who underwent 75 g oral glucose tolerance test (between the 24th and 28th week). We excluded cases in which FG was between 92 mg/dL and 125 mg/dL, which were considered GDM, and cases with $FG \geq 126$ mg/dL and/or $HbA1c \geq 6.5$ % (overt diabetes). One thousand electronic medical records from between 2013 and 2021 were reviewed and a database was created. The partial results were presented as percentage and 95 Confidence Interval (95% CI). The association between HbA1c and GDM was presented as relative risk and 95% CI. *Results:* Among pregnant women with normal fasting glucose levels and $HbA1c < 5.7\%$, the incidence of GDM, diagnosed by OGTT, was 8.5% (6.4-11.3), while in the group with PD was 14.3% (5.8%-29.8%). The relative risk (RR) for developing GDM among the PD group was 1.7 (0.7-3.9). *Discussion and conclusion:* The association between prediabetes and gestational diabetes was not confirmed. However, these results are preliminary, and we need to reach the sample size calculated before starting the study to better understand these results. Furthermore, nonpregnant women with prediabetes are monitored and eventually treated, therefore, further studies are needed to evaluate the benefit of treating these pregnant women as recommended for the general population

Keywords: Prediabetes; Gestational diabetes; Oral glucose tolerance test; Glycosylated hemoglobin.