Association of Maternal Age, Ethnicity and BMI with Gestational Diabetes Prevalence in Multi-Racial Singapore

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Abstract : Introduction: Gestational diabetes (GDM) is a common pregnancy complication with short and long-term health consequences for both mother and fetus. Factors such as family history of diabetes mellitus, maternal obesity, maternal age, ethnicity and parity have been reported to influence the risk of GDM. In a multi-racial country like Singapore, it is worthwhile to study the GDM prevalences of different ethnicities. We aim to investigate the influence of ethnicity on the racial prevalences of GDM in Singapore. This is important as it may help us to improve guidelines on GDM healthcare services according to significant risk factors unique to Singapore. Materials and Methods: Obstetric cohort data of 926 singleton deliveries in KK Women's and Children's Hospital (KKH) from 2011 to 2013 was obtained. Only patients aged 18 and above and without complicated pregnancies or chronic illnesses were targeted. Factors such as ethnicity, maternal age, parity and maternal body mass index (BMI) at booking visit were studied. A multivariable logistic regression model, adjusted for confounders, was used to determine which of these factors are significantly associated with an increased risk of GDM. Results: The overall GDM prevalence rate based on WHO 1999 criteria & at risk screening (race alone not a risk factor) was 8.86%. GDM rates were higher among women above 35 years old (15.96%), obese (15.15%) and multiparous women (10.12%). Indians had a higher GDM rate (13.0 %) compared to the Chinese (9.57%) and Malays (5.20%). However, using multiple logistic regression model, variables that are significantly related to GDM rates were maternal age ($p < 0.001$) and maternal BMI at booking visit ($p = 0.006$). Conclusion: Maternal age ($p < 0.001$) and maternal booking BMI ($p = 0.006$) are the strongest risk factors for GDM. Ethnicity per se does not seem to have a significant influence on the prevalence of GDM in Singapore ($p = 0.064$). Hence we should tailor guidelines on GDM healthcare services according to maternal age and booking BMI rather than ethnicity.

Keywords : ethnicity, gestational diabetes, healthcare, pregnancy