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TCF7L2 gene rs7903146 polymorphism confers risk of GDM in relatively young and lean mothers

Mashfiqul-Hasan

Bangabandhu Sheikh Mujib Medical University, Bangladesh

Pregnant women without past history of glucose intolerance [N=100; age 26.22±4.56 years; body mass index (BMI) 26.39±3.85; mean±SD; GDM=50, normal glucose tolerance (NGT=50)] were studied for TCF7L2 rs7903146 polymorphism using Sanger sequencing technique (genotype CC=63, CT/TT=37). CC and CT/TT genotype of TCF7L2 rs7903146 polymorphism had no significant difference of age (p=0.723) or BMI (p=0.548). HbA1c was significantly higher with CT/TT genotype (p=0.038) whereas family history of DM was similar in both groups. No significant difference was observed for age, BMI and HbA1c between women with CC genotype and those with CT/TT within GDM and NGT groups. While GDM women with CC genotype had higher age and BMI than NGT women (GDM vs. NGT: age 27.96±3.79 vs. 24.60±4.45 years, p=0.002; BMI: 27.67±3.93 vs. 25.04±3.50 kg/m², p=0.006; mean±SD), GDM women with CT/TT genotype had no significant difference of age and BMI with NGT women (GDM vs. NGT: age 27.00±5.22 vs. 25.60±4.10 years, p=0.390; BMI: 26.48±3.63 vs. 27.00±4.13 kg/m², p=0.688; mean±SD). In women of age <25 years, frequency of GDM was significantly higher in those with CT/TT genotype than those with CC [CT/TT vs. CC: 58.3% vs. 17.4%, p=0.022] having an odds ratio (OR) of 6.650 (95% CI 1.377-32.114) for GDM; but not in women ≥25 year old (CT/CC vs. CC 60% GDM in both groups, p=1.000, OR=1.000, 95% CI 0.361-2.773). Using BMI cut-off at 25 kg/m², women with BMI <25 kg/m² had significantly higher frequency of GDM in those with CT/TT genotype than those with CC (CT/TT vs. CC: 61.5% vs. 18.2%, p=0.024) with an OR of 7.200 (95% CI 1.518-34.139); but not in women having BMI ≥25 kg/m² (CT/TT vs. CC 58.3% vs. 58.5%, p=0.987, OR=0.992, 95% CI 0.357-2.86). It is concluded that polymorphism of TCF7L2 rs7903146 may confer increased risk of GDM even in mothers with young age and lean BMI.

Biography

Mashfiqul-Hasan has completed his MD in Endocrinology from BSMMU, Dhaka, Bangladesh in 2016. He is currently working as an Endocrinologist in National Institute of Neurosciences, Dhaka, Bangladesh. He is also a Research Associate of study group lead by Prof. M A Hasanat in the Department of Endocrinology, Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka, Bangladesh. He has 6 original articles published in national and international journals. His major research area is Diabetes (including GDM).

mashfiq.hasan@yahoo.com

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