

MEETING ABSTRACT

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# Hba1c levels are increased in patients with gestational diabetes carrying the T/T genotype of the rs1990760 polymorphism in the IFIH1 gene

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## Background

Gestational diabetes mellitus (GDM) is diabetes diagnosed in the second or third trimester of pregnancy that is not clearly overt diabetes. This condition is a common complication of pregnancy, being associated with both maternal and neonatal adverse outcomes. Several studies have indicated that viruses play an important role in the pathophysiology of diabetes. IFIH1/MDA5 gene encodes a cytoplasmic receptor that recognizes viral nucleic acids, playing a major role in the immune response against viruses. Accordingly, the rs1990760 (G/A) polymorphism in the IFIH1 gene has been associated with type 1 diabetes mellitus in different populations. Considering that the MDA5 receptor is expressed in human placenta, we therefore hypothesized that the rs1990760 G/A polymorphism could be also associated with GDM.

## Objectives

To investigate the association between the IFIH1 rs1990760 polymorphism and GDM and/or its clinical characteristics in a Southern Brazilian population. Moreover, we aimed to analyze IFIH1 expression in placentas from GDM patients and healthy pregnant women according to different rs1990760 genotypes.

## Materials and methods

We analyzed 129 patients with GDM (cases) and 144 pregnant women without GDM (controls). The polymorphism was genotyped by RT-PCR using TaqMan MGB probes (Life Technologies). IFIH1 expressions in

placentas from 70 cases and 36 controls were evaluated using RT-qPCR.

## Results

Genotype and allele frequencies of the rs1990760 polymorphism did not differ between GDM patients and non-diabetic controls ( $P=0.702$  and  $P=0.708$ , respectively), and adjustment for ethnicity did not change these Results. In GDM patients, fasting glucose levels, body mass index and age were not significantly different between rs1990760 genotypes. However, T/T genotype carriers had increased levels of glycated hemoglobin (A1c) as compared to G allele carriers ( $5.9 \pm 0.4$  vs.  $5.4 \pm 0.5$ ,  $P=0.007$ ). IFIH1 expression in placenta was similar among the three genotypes of the rs1990760 polymorphism ( $P>0.05$ ). Interestingly, IFIH1 expression in placenta was decreased in patients with GDM as compared to controls ( $7.0 \pm 4.2$  vs.  $9.7 \pm 9.4$ ,  $P=0.044$ ). Accordingly, IFIH1 expression was inversely correlated to A1c levels ( $r=0.549$ ,  $P=0.035$ ).

## Conclusions

This study suggests an association between the T/T genotype with increased levels of A1c. Furthermore, IFIH1 gene expression seems to be associated with protection for GDM, and it was inversely correlated to A1c levels.

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