Intracellular adhesion molecule 1 polymorphism and systemic oxidative stress

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Gestational diabetes mellitus (GDM) has been defined as glucose intolerance first detected during pregnancy. Systemic oxidative stress may contribute to GDM related perinatal complications. Intracellular adhesion molecule-1 (ICAM-1) is related to female reproductive system disorders. The ICAM-1 gene has two single-base polymorphisms which are common genetic variations associated with DM. In the current study, we aimed to investigate the relation between ICAM-1 polymorphism and various systemic redox homeostasis biomarkers in pregnant women with and without GDM.

In GDM, systemic levels of both protein oxidation biomarkers {protein carbonyl groups (PCO), advanced protein oxidation end products (AOPP), protein thiol groups (P-SH)} and lipid hydroperoxides (LHP) were significantly different than healthy pregnant women (HP). Cu, Zn superoxide dismutase (Cu, Zn-SOD) activities as antioxidant parameter were found lower than HP. No significant differences were found in plasma ICAM levels between GDM patients and HP.

In GDM, ICAM-469 with AA genotype PCO, LHP levels were higher and Cu, Zn-SOD activities were lower than HP. The systemic redox profile of GA genotype only differs from AA genotype with respect to higher AOPP levels. In GDM, ICAM-469 with GG genotype PCO levels were higher and Cu,Zn-SOD and P-SH were lower than HP.

In GDM, ICAM-241 with GG genotype PCO, AOPP, LHP and Cu,Zn-SOD were different from HP. In GA only Cu,Zn-SOD levels were different from HP. The polymorphic genotypes of ICAM-1 and/or its plasma levels may not related to systemic redox homeostasis.

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