GALECTIN-3 GENE (LGALS3) +292C ALLELE, RELATED TO LOW LEVELS, IS ASSOCIATED TO VASOOCCLUSIVE CRISIS IN SICKLE CELL ANEMIA PATIENTS

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Introduction: Vasooclusive crisis (VOC) is caused by occlusion of blood vessels, resulting in progressive damage to organs. However, this clinical outcome is variable, indicating influence of modifying genes, such as LGALS3, which codifies galectin-3 (gal-3), which is a multifunctional protein involved in inflammation, apoptosis, adhesion and resistance to reactive oxygen species (ROS), those events are present in SCA erythrocytes. LGALS3 has two single nucleotide polymorphisms (SNPs), +191(C→A) and +292 (A→C) regions, that was analyzed with inflammatory disease. Objectives: This study aimed to evaluate the association between LGALS3 polymorphisms and gal-3 levels with VOC in SCA patients. Material and Methods: LGALS3 Polymorphisms from SCA patients (n=182) were determined by real time PCR using methodology Taqman Genotyping Assays. In a subgroup of SCA patients (n=75), the Gal-3 serum levels were determined by commercial kit for Human LGALS3/Galectin-3 ELISA. Results: The patients’ age varied from 1 to 9 years old, median 5 years and 52% were male. The frequency of polymorphism at +191 region was 55% CC (n=101), 33% AC (n=60) and 12% AA (n=21), and at +292 region was 20% AA (n=37), 46% AC (n=84) and 34% CC (n=61). The presence of VOC was associated with +292C allele of LGALS3 (p=0.0124 OR=3.03 IC=1.24 to 7.46). It was found association of LGALS3 variant alleles genotypes at the +191 (CA+AA) and +292 (AC+CC) regions with decreased gal-3 levels (p<0.0001 and p=0.0058, respectively). However, we found no association between gal-3 levels and VOC (p=0.2329). The LGALS3 diplotypes related to high (CA/CA) and intermediate (CC/CC; CC/AA; CA/AA; CA/CC)/low (CC/AC; AC/AC) levels of gal-3 also did not show association with VOC (p=0.776). Conclusions: The results suggest that +292C allele of LGALS3 is associated to VOC, however, the level of gal-3 measured at no crisis period showed no association with VOC.

Palavras-chave: sickle cell anemia, galectin-3, vasoocclusive crisis.

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