The role of vitamin D and vitamin D binding protein gene polymorphisms in myocardial infarction

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Background: Cardiovascular diseases are recognized as the leading cause of death in the developed world. Also, the serum level of vitamin D is recognized as one of the risk factors for cardiovascular diseases. Since all active and inactive forms of vitamin D are transported by the vitamin D binding protein (VDBP), it can be assumed that polymorphisms of the VDBP gene that affect its functionality and serum level also affect the serum level of vitamin D and thus may participate in the development of cardiovascular diseases.[1] The aim of this research is to investigate the association of VDBP gene polymorphisms rs4588 and rs7041 with acute myocardial infarction and to investigate the association of these polymorphisms with the serum level of 25-hydroxyvitamin D.

Patients and Methods: This cross-sectional study included 155 subjects with acute myocardial infarction and 105 healthy subjects in the control group. Serum vitamin D level was determined using liquid chromatography tandem mass spectrometry (LC-MS/MS). Allele frequencies at polymorphic sites rs4588 and rs7041 of the VDBP gene were determined using real time polymerase chain reaction (RT-PCR).

Results: A marginally significant association was observed between the VDBP (rs4588) T/T genotype and acute myocardial infarction. Furthermore, we found a significant association between VDBP (rs4588) T/T genotype and the acute anteroseptal myocardial infarction. No association was found between rs7041 VDBP polymorphism and acute myocardial infarction. Although no association of vitamin D serum level with acute myocardial infarction was found, the VDBP (rs4588) G/G genotype was associated with a higher vitamin D serum. Multivariate logistic regression analysis found an association between low vitamin D serum level, VDBP (rs4588) T/T genotype and anteroseptal myocardial infarction.

Conclusions: The results of this study suggest that the VDBP (rs4588) T/T genotype may be associated with acute myocardial infarction of anteroseptal localization.[2] Additional research is needed to further investigate the association of VDBP gene polymorphisms with acute myocardial infarction.

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LITERATURE

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