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Association of MMP-9 gene polymorphisms with nephrolithiasis patients

(Article)

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Abstract

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Background: Nephrolithiasis is one of the causes which lead to chronic kidney disease (CKD). Matrix metalloproteinases (MMPs) are endopeptidases degrading extracellular matrix which correlate with the pathogenesis of atherosclerosis. The current study was designed to analyze the association of (R279Q, C1562T) polymorphism of MMP-9 with nephrolithiasis patients. Methods: Genotyping of MMP-9/R279Q and of MMP-9/C1562T polymorphism were carried out by PCR-based restriction digestion method. Serum level of MMP-9, oxidative stress marker, MDA, and uric acid were measured in patients and control. Results: Allele frequencies of the MMP-9 /C1562T polymorphism for C and T allele were 71.25% and 28.75% in patients, 87.08% and 12.92% in control respectively. The homozygote TT was more frequent in the nephrolithiasis patients group, while T allele frequency was significantly higher in the nephrolithiasis patients group than in the control group. The patients with CT and TT genotype showed a significant increase in serum MMP-9, Total Oxidant Status (TOS), Oxidative Stress Index (OSI), Malondialdehyde (MDA), and uric acid when compared to CC genotype in patients with nephrolithiasis. The R279Q polymorphism site with regard to the relationship with nephrolithiasis was not significant. Conclusion: The result indicates that patients with TT genotype had an increased risk of stones. Also, the results demonstrate that TT allele of the C1562T polymorphism in the MMP-9gene is related with an increase of oxidative stress in nephrolithiasis patients and may possibly impose a risk for cardiovascular diseases in patients with TT genotype of MMP-9. © 2017 Wiley Periodicals, Inc.

Reaxys Database Information

View Compounds

Author keywords

malondialdehyde MMP-9 gene polymorphism nephrolithiasis total antioxidant status

Indexed keywords

EMTREE drug terms: gelatinase B malonaldehyde uric acid

EMTREE medical terms: adult Article cardiovascular risk controlled study disease association DNA polymorphism enzyme blood level gene frequency genetic association genetic risk genotype homozygote human major clinical study middle aged MMP 9 gene nephrolithiasis oxidative stress polymerase chain reaction uric acid blood level

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