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The endothelial nitric oxide synthase gene G894T, glutathione S-transferase (GSTM1 and GSTT1) polymorphisms as a risk factor in the patient with nephrolithiasis

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INTERNATIONAL JOURNAL OF BIOLOGICAL MACROMOLECULES

Volume: 140 Pages: 719-726

DOI: 10.1016/j.ijbiomac.2019.08.184

Published: NOV 1 2019

Document Type: Article

[View Journal Impact](#)

Abstract

Background: The genetic features indicate a crucial role in nephrolithiasis. The present study was aimed to investigate the role of Glutathione-S-transferase Mu (GSTM1), Glutathione-S-transferase Theta (GSTT1) and endothelial nitric oxide synthase (eNOs) gene polymorphism in nephrolithiasis.

Methods: We involved a case-control study in which 480 individuals were divided into 240 healthy control and 240 patients with nephrolithiasis. For each patient and control, we measured biochemical criteria, levels of glutathione S-transferase, eNOs, GSTM1, GSTT1 genes and eNOs genes polymorphism by PCR-RFLP.

Results: GSTM1 and GSTT1 null genotypes are not a risk features for nephrolithiasis. The eNOs frequency GG, GT, and TT genotypes by using Ban II enzyme as restriction enzyme were found to be (48.33, 36.67, and 15.00) %. The eNOs frequency TT, GT, and GG genotypes by using the Ban II enzyme as restriction enzyme were found to be 15.84, 25.83, and 58.33%, respectively. The result showed an increase in serum eNOs levels were in the patient's group comparing to control.

Conclusions: This work is the first in the literature to study the relation between eNOs genes polymorphisms and nephrolithiasis. The results conclude that 'll' genotypes in the eNOs genes are associated with an increase the oxidative stress in patients. (C) 2019 Elsevier B.V. All rights reserved.

Keywords

Author Keywords: Nephrolithiasis; Gene polymorphism; GSTM1 and GSTT1

KeyWords Plus: CORONARY-ARTERY-DISEASE; LUNG-CANCER; OXIDATIVE STRESS; ASSOCIATION; GSTP1; PEROXYNITRITE; SUSCEPTIBILITY

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Funding

Funding Agency	Grant Number
Research Management Center, International Islamic University Malaysia	IIUM/504/5/29/1

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Journal InformationImpact Factor: [Journal Citation Reports](#)**Categories / Classification**

Research Areas: Biochemistry & Molecular Biology; Chemistry; Polymer Science

Web of Science Categories: Biochemistry & Molecular Biology; Chemistry, Applied; Polymer Science

Document Information

Language: English

Accession Number: WOS:000501656200078

PubMed ID: 31445152

ISSN: 0141-8130

eISSN: 1879-0003

Other Information

IDS Number: JU40F

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1. [Association between GSTM1, GSTT1, and GSTP1 polymorphisms and lung cancer risk in a Turkish population](#) Times Cited: 29
By: Ada, Ahmet O.; Kunak, Semih C.; Hancer, Figen; et al.
MOLECULAR BIOLOGY REPORTS Volume: 39 Issue: 5 Pages: 5985-5993 Published: MAY 2012
2. [The role of sodium intake in nephrolithiasis: epidemiology, pathogenesis, and future directions](#) Times Cited: 10
By: Afsar, Baris; Kiremit, Murat C.; Sag, Alan A.; et al.
EUROPEAN JOURNAL OF INTERNAL MEDICINE Volume: 35 Pages: 16-19 Published: NOV 2016
3. [Genetic Polymorphism G894T and the Prognosis of Heart Failure Outpatients](#) Times Cited: 5
By: Araujo Tardin, Oziel Marcio; Pereira, Sabrina Bernardez; Moncores Velloso, Monica Wanderley; et al.
ARQUIVOS BRASILEIROS DE CARDIOLOGIA Volume: 101 Issue: 4 Pages: 352-358 Published: OCT 2013
4. [Preventive kidney stones: continue medical education](#) Times Cited: 1
By: Assadi, F.; Moghtaderi, M.
Int J. Prey. Med Volume: 8 Published: 2017
5. [Generalized continued fractions: a unified definition and a Pringsheim-type convergence criterion](#) Times Cited: 1
By: Baumann, Hendrik
ADVANCES IN DIFFERENCE EQUATIONS Volume: 2019 Issue: 1 Article Number: 406 Published: SEP 23 2019
6. [Serum super oxide dismutase \(SOD\), malondialdehyde \(MDA\) levels in urinary disorders](#) Times Cited: 1
By: Baxi, J.; Sharma, K.; Mehta, A.; et al.
Indian J. Clin. Biochem. Volume: 9 Issue: 1 Pages: 47-49 Published: 1994
[\[Show additional data\]](#)
7. [Nitric oxide, superoxide, and peroxynitrite: The good, the bad, and the ugly](#) Times Cited: 4,149
By: Beckman, JS; Koppenol, WH
AMERICAN JOURNAL OF PHYSIOLOGY-CELL PHYSIOLOGY Volume: 271 Issue: 5 Pages: C1424-C1437 Published: NOV 1996