

Joint Meeting on
International Conference on
PHARMACOLOGY AND TOXICOLOGY
&
18th International Conference on
MEDICINAL AND PHARMACEUTICAL CHEMISTRY
October 18-19, 2018 Dubai, UAE

A study of CYP2C19*2, *3 and *7 in different Sudanese ethnic groups and their response to Omeprazole based triple therapy in Khartoum, Sudan 2016-2017

Safinaz Ibrahim Khalil

University of Medical Sciences and Technology, Sudan

Background: Pharmaco-genetics is an important branch of pharmacology and should be applied to assist the clinical usage of medicines which has a strong relation with enzyme activity of certain genes and alleles known through the literature. CYP2C19 is known to affect the activity of omeprazole and this will result in different responses to treatment. The commonest alleles through the literature are CYP2C19*2 and CYP2C19*3 which vary according to different ethnicity of different populations.

Methodology: A purposeful convenient sampling; in which patients with peptic ulcer disease and treated with omeprazole were reviewed and the PCR is used to differentiate the CYP2C19 different alleles in patients presenting from February 2016 to January 2017.

Results: In the present study we investigated the distribution of three common gene variants affecting the omeprazole treatment of peptic ulcer disease and *H. pylori* eradication namely to CYP2C19*2, *3 and *7. The CYP2C19*2 mutation was found among all seven ethnic groups of Sudan, Arabs mostly 17 (139) followed by Darfurians 9 (139), Beja 6 (139) and Nilotes 6 (139), Nuba 5 (139) then Nubians 3 (139) and Fulani 1 (139), $p=0.048$ which is significant. Regarding CYP2C19*3 mutation of this allele is found in certain ethnic groups Arabs 6 (139), Nubians 6 (139) and Nuba 2 (139), $p=0.043$ significant. There is no mutation found among different Sudanese ethnic groups in CYP2C19*7. Arabs are normal homozygotes 6 (139) and Darfurians 1 (139). Nuba 1 (139) was found to be heterozygotes in this allele $p=0.038$ significant. Treatment of *H. pylori* with omeprazole-based triple therapy was used in 110 (139) and no significant correlation found with the different ethnic groups of Sudan.

Conclusion: These data indicate that Sudanese seven ethnic groups showed activity of CYP2C19*2, CYP2C19*3 were they took omeprazole based triple treatment and some of them showed activity to CYP2C19*7.

Biography

Safinaz Ibrahim Khalil has her expertise in evaluation and passion in improving the health and wellbeing. Her open and contextual evaluation model based on responsive constructivists creates new pathways for improving healthcare. She has built this model after years of experience in research, evaluation, teaching and administration both in hospital and education institutions.

drsafinaz17@gmail.com

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