THE ASSOCIATION BETWEEN (RS46522) GENETIC POLYMORPHISM IN THE UBIQUITIN-CONJUGATING ENZYME E2Z AND MYOCARDIAL INFARCTION IN A COHORT OF EGYPTIAN PATIENTS

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INTRODUCTION

Myocardial infarction is the most serious type of ACS. According to WHO, ACS is is responsible for 8.9 million deaths about 16% of the world total deaths. The most frequent cause of ACS is atherosclerosis which is a consequence of deposition of foam cells that stimulate macrophages, cytokines, monocytes, T-cells and interleukins that promote cellular apoptosis and activation of ubiquitin system that induce plaque instability and subsequent coronary artery obstruction. Ubiquitin protesome system degrades diverse of proteins through the chain of enzymes, one of these enzymes is ubiquitin conjugating enzyme UBE2Z which is supposed to havea role in MI pathogenesis from initiating atherosclerosis through endothelial dysfunction up to plaque instability. The variant rs46522 is located at intronic region of chromosome17 of UBE2Z gene.

AIM OF THE WORK

The aim of the present work was to study the association between ubiquitin-conjugating enzyme E2Z rs46522 gene polymorphism and myocardial infarction in a cohort of Egyptian patients.

PATIENTS AND METHODS

Subjects were divided into 2 groups:50 newly diagnosed patients suffering from AMI admitted to cardiology department at Alexandria main university and 50 age &sex healthy individuals a control group.

Methods:

- History taking included: age, gender, BMI, smoking, HTN, DM and family history of MI.
- Blood pressure measurement.
- Radiological investigations included ECG and ECHO.
- Lab investigations:
- Routine investigations: HbA1c, FBG, Lipid profile (cholesterol, TGs, LDL and HDL) and cardiac troponin-I were measured.
- Molecular analysis of rs46522 SNP of UBE2Z gene using 5` nuclease allele discrimination assay by real time PCR.

RESULTS

Table 1: Genotype and risk allele comparisons were made between the two groups under investigations

	AMI patients (n = 50)		Controls (n = 50)		Test of sig.
	No.	%	No.	%	
Genotype					
CC	18	36.0	20	40.0	χ^2 p= 0.695
CT	23	46.0	24	48.0	
TT	9	18.0	6	12.0	
$^{HW}p_1$	0.728		0.768		
Allele					
C	59	59.0	64	64.0	χ^2 p= 0.467
T	41	41.0	36	36.0	

Table 2: The relation was between the genotype and smoking habit, hypertension, DN, family history and BMI measurement in AMI patients

	Genotype						Test of sig.
	CC(n=18)		CT(n=23)		TT(n=9)		
	No.	%	No.	%	No.	%	
Smoking	15	37.5	18	45	7	17.5	^{MC}P= 1
HTN	10	37	11	40.7	6	22.2	^{MC}P= 0.616
DM	9	39.1	11	47.8	3	13	^{MC}P= 0.805
Family history	6	37.5	6	37.5	4	25	χ^2P= 0.599
BMI (kg/ m^2) Mean ± SD.	32.8 ± 3.15		31.92 ± 2.93		35.29 ± 7.21		^{F}P= 0.020 *

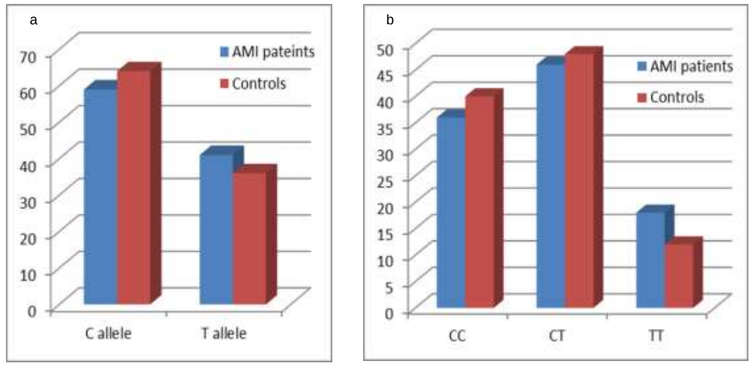

Figure 1:
a) The comparison between the two studied groups is according risk allele.
b) The comparison between the two studied groups is according different genotypes.

CONCLUSION

The rs46522 polymorphism of UBE2Z isn't associated with MI in our study. The homozygous TT genotype of rs46522 polymorphism is associated with increased BMI in MI patients.