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PNPLA3 RS738409 POLYMORPHISMS CLINICAL PROFILE IN A MAFLD MEXICAN COHORT

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BACKGROUND AND AIM

With the advances of the genetic knowledge of the Metabolic dysfunction-associated fatty liver disease (MAFLD) is now possible identify individuals at risk of MAFLD or estimate the risk of severe histological and clinical outcomes, including MASH and MASH-fibrosis. Among the different genetic markers, the PNPLA3 rs738409 result in one of the most studied, however in Mexico City there are few studies have been performed to evaluate the epidemiologic behavior and the clinical association to this gene. The aim of this study is to identify the PNPLA3 rs738409 polymorphisms and the clinical profile related among patients with MAFLD in a Mexican Cohort.

METHODS

A total of 95 adult volunteers with MAFLD were selected to participate in this study. Self-reported data included age, sex, drinking habits, medical history (HTN, T2D, obesity, dyslipidemia). Physical evaluation included blood pressure, height, weight, body mass index (BMI) and waist circumferences. Liver profile, platelets, Glucose, triglycerides, cholesterol, c-HDL, and hepatitis C antibody (HCV) and Genotyping for PNPLA3 rs738409 using a commercially available laboratory testing provided by LabCorp. The diagnosis for MAFLD were done using the Fibroscan.

RESULTS

Table 1. PNPLA3 rs738409 polymorphisms and clinical profiles in subjects with MAFLD, Mexico City, 2024.

	PNPLA3 rs738409 polymorphisms					
	CC 15.8%(15)		CG 39.0%(41.1%)		GG 41(43.2%)	
Variable	Mean	SD	Mean	SD	Mean	SD
Age	49	13	55	11	50	11
Gender(n/%)						
Female	7	46.7%	26	66.7	32	78.0
Male	8	53.3%	13	33.3	9	22.0
Family History of MAFLD/MASH (n/%)						
No	9	60.0	26	66.7	28	63.4
Yes	6	40.0	13	33.3	15	36.6
IMC(Kg/m2)	32.99	6.74	34.25	6.77	33.43	6.73
Waist Circumference (cm)	110.13	17.63	109.41	15.05	107.4	15.74
CAP (dB/m)	320.60	27.96	336.79	38.70	316.95	31.45
Transient Elastography(kPa)	5.65	1.48	6.40	1.70	6.54	1.98
Platelets (10^3/µl)	314.07	84.92	262.97	69.76	269.02	68.16
AST (U/L)	22.34	8.11	30.87	18.02	34.76	18.49
ALT (U/L)	28.53	15.77	41.17	33.66	46.78	32.15
Triglycerides(mg/dl)	164.35	62.85	184.17	120.08	156.01	70.3
Total Cholesterol(mg/dl)	195.88	52.87	180.27	44.76	178.55	44.07
C-HDL(mg/dl)	47.32	12.10	45.35	11.35	46.07	10.32
Glucose(mg/dl)	117.98	63.79	107.70	40.50	93.10	10.14
HbA1c(%)	6.49	1.61	6.32	1.47	6.11	0.82
FIB-4 Score	0.72	0.24	1.13	0.57	0.97	0.52
FIB-4 MASH-Fibrosis Risk Stratification (n/%)						
Low Risk	14	17.5	33	41.3	33	41.3
Intermediate Risk	0	0	4	36.4	7	63.6
High Risk	0	0	3	66.7	1	33.3
FAST MASH-Fibrosis Risk Stratification (n/%)						
Low Risk	14	20.6	29	42.6	25	36.8
Intermediate Risk	1	4.8	8	38.1	12	57.1
High Risk	0	0	2	33.3	4	66.7

Figure 1. PNPLA3 rs738409 polymorphisms and Aminotransferase levels, México City, 2024.

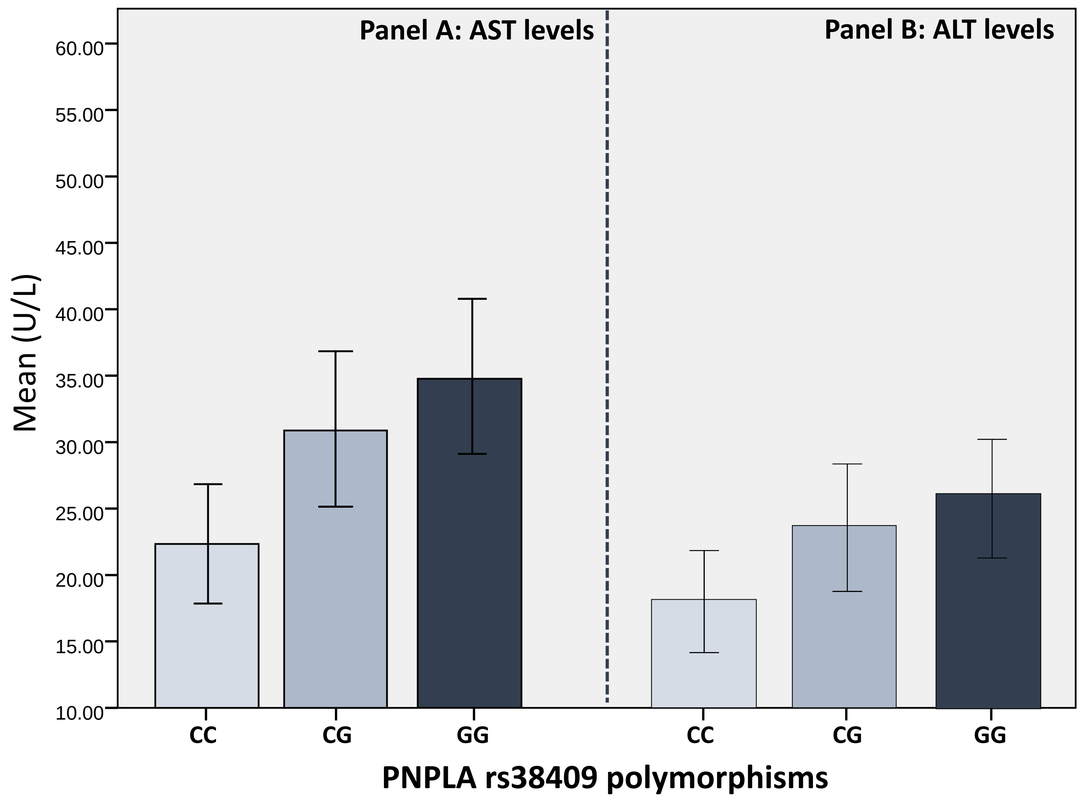
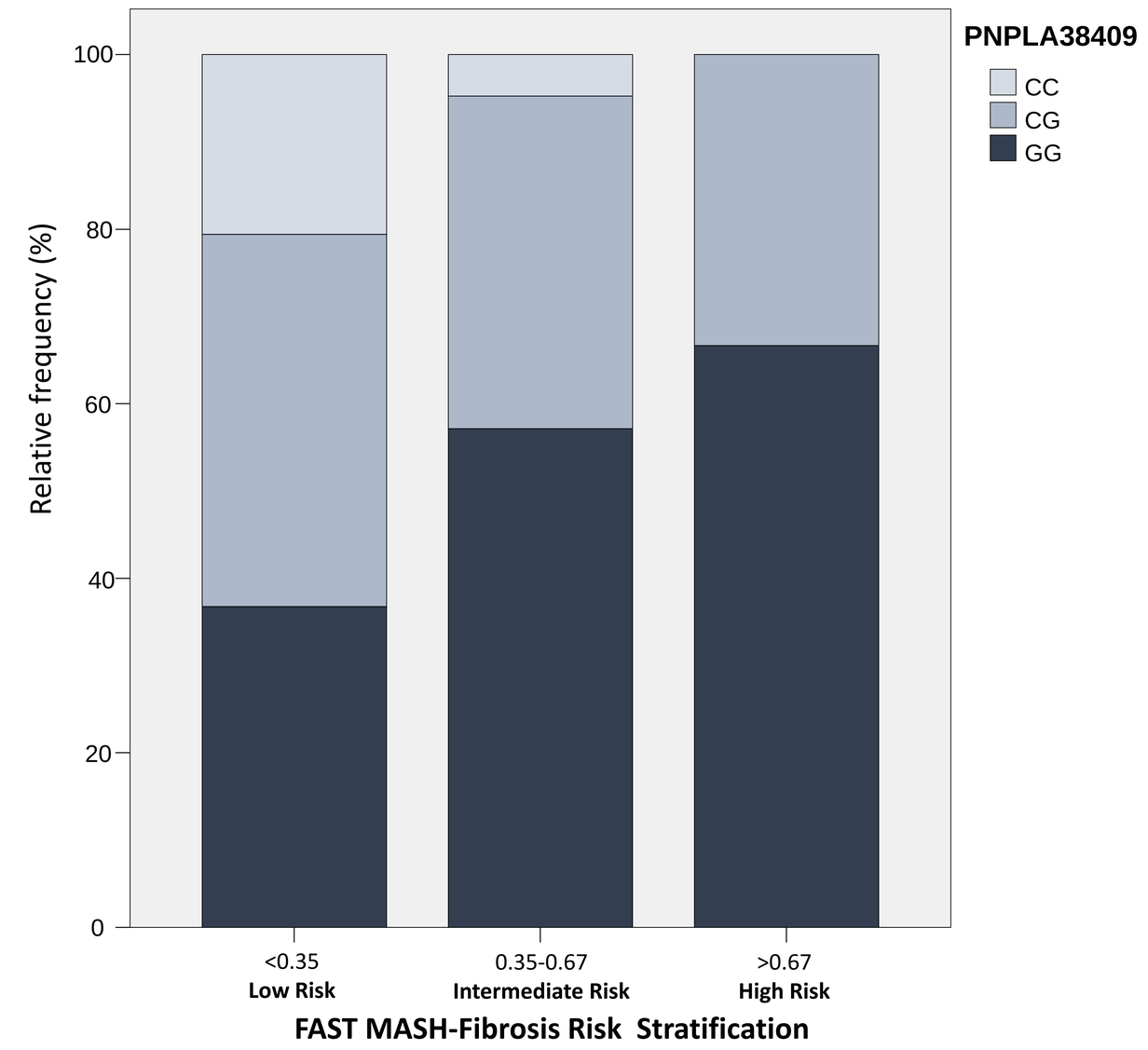


Figure 2. FAST MASH-Fibrosis Risk Stratification and PNPLA3 rs738409 polymorphisms, México City, 2024.



CONCLUSIONS

The PNPLA3 rs738409 GG homozygous was the polymorphism with a higher prevalence among the patients included in this study showing a higher levels of liver enzymes and FAST Score and Intermediate or High Risk of MASH-Fibrosis according to the FAST risk stratification, so the early identification of the patient with this genotype could help to early diagnosis of MAFLD or MASH.

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P28 – Alma Ladrón de Guevara