KSN 2019
Seoul, Korea · May 23 - 26

Abstract Type : Oral
Abstract Submission No. : OR-1093

3'UTR Variants of TNS3, PHLDB1, NTN4 and GNG2 Genes are associated with IgA Nephropathy Risk in Chinese Han Population

Hui Han, Jiali Wei
Department of Department of Nephrology, Hainan General Hospital, China

Objectives: IgA nephropathy (IgAN) is the most common primary glomerulonephritis and characterized by mesangial cells proliferation and accumulation of the mesangial matrix. In the present study, we aimed to evaluate the associations of 3'UTR variants of TNS3, PHLDB1, NTN4 and GNG2 genes with the risk of IgAN in Chinese Han population.

Methods: In this study, a case-control study was performed to explore the role of *TNS3*, *PHLDB1*, *NTN4* and *GNG2* 3'UTR region polymorphisms with IgAN risk in a Chinese Han cohort. A logistic recession model was used to calculated candidate SNPs effects on IgAN risk with adjustment for age and gender. *In silico* prediction was performed to identify potential functions of SNPs.

Results: The analysis revealed a significant relationship between the homozygotic genotype for *NTN4* rs1362970 A/A and higher risk of IgAN (p = 0.003). Statistically significant associations were found when the sample was stratified by gender and Lee's grade. As a result, *NTN4* rs1362970 A/A and *GNG2* rs3204008 G/G genotypes were associated with enhanced IgAN risk in males (p = 0.006, p = 0.023, respectively). However, *PHLDB1* rs7389 G/T genotypes and higher IgAN risk was found in females (p = 0.008). In Lee's grade III-V subgroup, the rs1369270 in *NTN4* was significantly correlated with the risk of IgAN (p = 0.004). Bioinformatics prediction suggested that rs1362970 within *NTN4* 3'UTR was located in the potential target sequence of hsa-miR-483-5p.

Conclusions: The results from our study to demonstrated that *NTN4*, *GNG2* and *PHLDB1* genes polymorphisms were implicated in IgAN susceptibility in Chinese Han population. Further research should be addressed to investigate and validate the mechanism of how these abovementioned polymorphisms affect IgAN.

Comparisons of clinical characteristics among patients with different genotypes.

Supplementary Table 1. Comparisons of clinical characteristics among patients with different genotypes.

Variable	rs3750163				rs17748			
	AA	GA	GG	*p*	TT	TC	CC	*p*
Urine RBC (n/μL)	899.00±0.00	216.76±67.07	253.30±31.89	0.303	161.53±69.96	241.16±51.98	271.47±38.88	0.606
Proteinuria (g/24 h)	5.00±2.08	2.27±0.25	2.77±0.41	0.703	1.90±0.34	3.39±0.89	2.30±0.13	0.275
ALB (g/L)	29.00±4.73	34.43±0.99	33.95±0.48	0.504	35.43±1.37	33.95±0.76	33.97±0.55	0.713
CHO (mmol/L)	6.33±1.76	5.24±0.40	6.31±1.23	0.922	4.95±0.49	7.77±2.67	5.16±0.16	0.458
IGA (g/L)	2.00±0.00	2.85±0.15	2.73±0.08	0.548	2.80±0.26	2.77±0.12	2.75±0.08	0.977
C3 (g/L)	1.00±0.00	1.00±0.00	1.03±0.02	0.579	1.03±0.02	1.03±0.02	1.03±0.01	0.839
C4 (g/L)	0.00±0.00	0.02±0.02	0.02±0.01	0.977	0.00±0.00	0.03±0.02	0.01±0.01	0.317
BUN (mmol/L)	6.00±1.00	8.02±0.80	8.26±0.35	0.780	7.33±1.85	9.04±0.57	7.73±0.37	0.121
Scr (μmol/L)	103.67±41.64	134.35±14.14	148.59±10.01	0.740	161.62±56.63	158.73±14.41	135.98±10.3	0.413
UA (μmol/L)	440.00±5.00	367.30±13.20	383.29±13.67	0.790	306.42±23.01	425.27±26.62	361.28±8.22	0.006*
Serum β macroglobulin (mg/L)	/	2744.15±361.40	3050.89±172.64	0.601	2612.31±448.3	3096.21±217.48	2986.4±228.33	0.763
Urine β macroglobulin (mg/L)	/	479.00±122.84	671.77±70.63	0.252	497.31±172.2	716.88±103.87	621.52±85.87	0.637
HB (g/dL)	124.00±18.33	129.67±3.28	126.81±1.42	0.692	124.00±5.81	126.93±2.11	127.94±1.74	0.764
FIB (g/L)	4.50±0.50	3.79±0.19	20.65±16.86	0.902	3.68±0.33	3.77±0.13	28.9±25.09	0.676

Comparisons of clinical characteristics among patients with different genotypes.

Supplementary Table 1. Comparisons of clinical characteristics among patients with different genotypes.

Variable	rs3750163				rs17748			
	AA	GA	GG	*p*	TT	TC	CC	*p*
Urine RBC (n/μL)	899.00±0.00	216.76±67.07	253.30±31.89	0.303	161.53±69.96	241.16±51.98	271.47±38.88	0.606
Proteinuria (g/24 h)	5.00±2.08	2.27±0.25	2.77±0.41	0.703	1.90±0.34	3.39±0.89	2.30±0.13	0.275
ALB (g/L)	29.00±4.73	34.43±0.99	33.95±0.48	0.504	35.43±1.37	33.95±0.76	33.97±0.55	0.713
CHO (mmol/L)	6.33±1.76	5.24±0.40	6.31±1.23	0.922	4.95±0.49	7.77±2.67	5.16±0.16	0.458
IGA (g/L)	2.00±0.00	2.85±0.15	2.73±0.08	0.548	2.80±0.26	2.77±0.12	2.75±0.08	0.977
C3 (g/L)	1.00±0.00	1.00±0.00	1.03±0.02	0.579	1.03±0.02	1.03±0.02	1.03±0.01	0.839
C4 (g/L)	0.00±0.00	0.02±0.02	0.02±0.01	0.977	0.00±0.00	0.03±0.02	0.01±0.01	0.317
BUN (mmol/L)	6.00±1.00	8.02±0.80	8.26±0.35	0.780	7.33±1.85	9.04±0.57	7.73±0.37	0.121
Scr (μmol/L)	103.67±41.64	134.35±14.14	148.59±10.01	0.740	161.62±56.63	158.73±14.41	135.98±10.3	0.413
UA (μmol/L)	440.00±5.00	367.30±13.20	383.29±13.67	0.790	306.42±23.01	425.27±26.62	361.28±8.22	0.006*
Serum β macroglobulin (mg/L)	/	2744.15±361.40	3050.89±172.64	0.601	2612.31±448.3	3096.21±217.48	2986.4±228.33	0.763
Urine β macroglobulin (mg/L)	/	479.00±122.84	671.77±70.63	0.252	497.31±172.2	716.88±103.87	621.52±85.87	0.637
HB (g/dL)	124.00±18.33	129.67±3.28	126.81±1.42	0.692	124.00±5.81	126.93±2.11	127.94±1.74	0.764
FIB (g/L)	4.50±0.50	3.79±0.19	20.65±16.86	0.902	3.68±0.33	3.77±0.13	28.9±25.09	0.676