ASSOCIATION OF IL-10 GENE PROMOTER POLYMORPHISMS (-592A/C; -819C/T) WITH DIABETIC NEPHROPATHY IN TYPE 2 DIABETES MELLITUS AMONG THE SOUTH INDIAN POPULATION

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INTRODUCTION

- Diabetic nephropathy is a leading cause for End-stage Kidney disease globally.
- Genetic polymorphisms, as well as metabolic and hemodynamic homeostasis, are major factors in the development and progression of DN. .
- Recent studies have shown interleukin-10 polymorphic variants are associated with cytokine production, renal hypertrophy and the onset of nephropathy.

OBJECTIVES

- This study aims to investigate the role of interleukin-10 promoter polymorphism (-592A/C; -819C/T) in the development chronic kidney disease in patients with diabetic nephropathy.

MATERIALS AND METHODS

- Prospective case control study.
- In the present study, we used PCR-RFLP methods to genotype Interleukin-10 promoter gene polymorphism (-592A/C; -819C/T) in 100 patients with diabetic nephropathy (DN) and 98 control subjects.
- The DN patients were categorized into two groups: 39 individuals in CKD1 to CKD3 stages (early stage) and 61 individuals in CKD4 and CKD5 stages (advanced stage).
- We conducted a chi-squared test to assess associations.

RESULTS

IL 10 Genotype	Control N=98 (%)	DN Patients N=100 (%)	OR (95% CI)	p-Value
819 T/C (rs1800871)				
CC	32 (32.6)	25 (25)	Reference	
TC	35 (35.7)	37 (37)	1.35 (0.67-2.71)	0.395
TT	31 (31.6)	38 (38)	1.56 (0.77-3.17)	0.21
TC+TT	66 (67.3)	75 (75)	1.45 (0.78-2.70)	0.234
TT	31 (31.6)	38 (38)	Reference	
CC+TC	67 (68.4)	62 (62)	0.75 (0.41-1.35)	0.347
C	99 (50.5)	87 (43.5)	Reference	
T	97 (49.5)	113 (56.5)	1.32 (0.89-1.96)	0.162
MAF	49.4	56.5		
HWE-X^2	7.99	6.11		
592 A/C (rs1800872)				
CC	29(29.6)	23(23.0)	Reference	
AC	63(64.2)	47(47.0)	6.30(2.24-17.7)	**0.001**
AA	6(6.12)	30(30.0)	0.94(0.48-1.82)	0.856
AC+AA	69(70.4)	77(77.0)	1.40(0.74-2.65)	0.291
AA	6(6.12)	30(30.0)	Reference	
CC+AC	92(93.9)	70(70.0)	0.15(0.06-0.38)	**0.001**
C	121(61.7)	93(46.5)	Reference	
A	75(38.3)	107(53.5)	1.85(1.24-2.76)	**0.002**
HWE-X^2	12.74	0.306		
MAF	38.2	53.5		

DISCUSSION

- A significant association was observed for IL 10 -592A/C (genetic model; AA *vs* CC, OR = 6.30; 95% CI = 2.24–17.7and P >0.001, recessive model; CC+AC vs AA, OR = 0.15; 95% CI = 0.06–0.38 and P > 0.001) polymorphism between the DN patients and control.
- However, there was no significance observed between the early stage and advanced stages of CKD progression.

CONCLUSION

- The IL 10 gene 819 T/C polymorphism in our studied population had no significant difference observed between DN cases and control subjects.
- Further, no association was found between the CKD stages. Present research shows a significant association of the -592A/C polymorphism with diabetic nephropathy. However, the studied polymorphisms did not contribute to the progression of CKD among diabetic nephropathy patients.

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