Apolipoprotein E gene polymorphism is not a strong risk factor for diabetic nephropathy and retinopathy in Type I diabetes: case-control study

ABSTRACT

APOE gene polymorphism does not determine genetic susceptibility for the development of diabetic retinopathy in Type I diabetes patients. Association between APOE gene polymorphism and diabetic nephropathy may be weak or moderate, but not strong.

INTRODUCTION

Background Familial and epidemiological studies have indicated that there is a strong genetic component in the aetiology of diabetic nephropathy in Type I diabetes patients. Apolipoprotein E (apoE) was discovered as a plasma protein involved in the metabolism of lipoproteins. Recently, the apolipoprotein E (APOE) gene has been suggested to be a risk factor for the development of micro- and macrovascular complications in diabetic patients. The APOE gene is polymorphic. There are three common alleles, E2, E3, and E4, which code for three major isoforms, resulting in six common genotypes. Individuals with apoE2 have higher triglyceride levels and are associated with lower cholesterol compared to individuals with apoE3. Individuals with apoE4 often have elevated plasma cholesterol levels. There is an increased prevalence of cardiovascular disease and particularly Alzheimer's disease. Apolipoprotein E polymorphism may influence the metabolism of lipoproteins in diabetic patients. Several recent studies have suggested that this polymorphism may be associated with a genetic predisposition for diabetic nephropathy. Thus, APOE is an important candidate gene for the development of microvascular complications in Type I diabetes patients. The aim of this study was to investigate the influence of APOE gene polymorphism in the development of diabetic nephropathy and retinopathy in Type I diabetes patients.

CONCLUSION

Conclusions The present study found no evidence for a role of the APOE gene polymorphism in genetic susceptibility for the development of diabetic retinopathy in Type I diabetes patients. Association between APOE gene polymorphism and diabetic nephropathy may be weak or moderate, but not strong.