Correlation of retinol binding protein 4 with insulin resistance and genetic study for endothelial nitric oxide synthase G894T   and glucose transport -1 in diabetes mellitus type 2 nephropathy

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Abstract : Diabetes mellitus (DM) is a metabolic disease involving in metabolism disorder. Diabetic nephropathy (DN) is the significant complication of diabetes, which is at the present time the major cause of chronic renal failure. Retinol binding protein 4(RBP)for is a plasma protein that secreted primary from liver and adipose tissues. Aim of the study to evaluate the RBP and related to genes of endothelial nitric oxide synthase G894T and glucose transport -1 in diabetes mellitus type 2 nephropathy. This study was included 160 subjects{80 control (C),80 patients}.The results show: There is significant increase in the fasting glucose, HbA_{1c}, fasting insulin level, insulin resistance, total cholesterol TC, TG, LDL-c and VLDL-c , Non HDL-c and RBP4 concentration in groups(M=Male and ,F=Female ,$p<0.001$), while concentration of serum HDL-c was found decrease significantly. There is significant positive correlation between RBP4 and insulin resistance in patients groups. According to the results of genotyping, XbaI polymorphism was identified as homologous genotype for patients:XbaI (-/-) 12 (30%) in the group M and 14 (35%) in the group F. In control groups 3(7.5%) in the group MC and in the group FC 2(5%), while individuals has heterozygous genotype XbaI (-/+) 7 (17.5%) in the group M, 10 (25%) in the group F, 10 (25%) in group MC and in the group FC 8(20%).A significant relationship between the of tenness of XbaI (-/-) variant in group M in compared with group MC an odds ratio = 5.14 and confidence interval at 95% level of (1.36 – 19.4), and in group F in compared with group FC an odds ratio = 13.12 and confidence interval at 95% of (2.64 – 65.07).

Also the results shown for the   G864T polymorphism for eNOS gene was identified as homologous genotype TT in group M 7 (17.5%), in Group F 9 (22.5%), in group MC 8 (20%) and in group FC 10 (25%), while individuals has heterozygous genotype G/T in group M 21 (52.5%), in Group F 20 (50%), in group MC 6 (15%) and in group FC 7 (17.5%).A significant frequency of GT variant in group M compared with group MC with odds ratio = 7.58 and confidence interval at 95% level of (2.43 – 23.62), and in patients of group F compared with group FC with odds ratio = 7.27 and confidence interval at 95% of (2.4 - 22.02).The conclusion from this study, it is found that RBP4 is associated in causing insulin resistance and lipid abnormalities. The high levels of non HDL-c in diabetic patient contribute in progression of diabetic nephropathy. The GLUT1 polymorphism in diabetic type 2 patients specially patients

with XbaI (-/-) and eNOS gene polymorphism G/T allele have a role in progression to diabetic nephropathy.

Key words :retinol binding protein4, endothelial nitric oxide synthase G894T gene, glucose transport 1gene , diabetes mellitus , genotype ,diabetic nephropathy.

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