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Beneficial effect of Hypericum perforatum on recovery of glomeruli in renal tissue of diabetic rats

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Background and Objectives: Diabetes mellitus is a common metabolic disorder in societies that can lead to some defects such as nephropathy. Investigations show that diabetic nephropathy is the most important reason of morbidity and mortality in diabetics. One of the complications of diabetic nephropathy is distention and destruction of glomeruli in renal tissue. According to various references to Hypericum perforatum in traditional medicine, this study was conducted to survey the effect of this plant on arrangement of glomerular renal tissue of male rat in diabetic state.

Materials and Methods: In this experimental investigation, 32 male Wistar rats, weighing 200-250 g, were divided randomly into 4 groups: 1. control, 2. control receiving treatment with HP, 3. diabetic, and 4. diabetic receiving treatment with HP. Diabetes induced by intraperitoneal injection of Streptozotocin (60mg/kg). Groups under treatment received food containing 6.25% of HP. To develop awareness of diabetes, blood sample was acquired from rats, first one week after the injection and then 6 weeks after the injection. Then the rats were anesthetized, the kidneys were removed by opening the peritoneal cavity. After making sections and microtome cut paraffin blocks, glomerular morphology was observed using Hematoxylin and Eosin stain. Quantifiable data resulted, was analyzed with one-way ANOVA in the SPSS v. 21 software.

Findings: The serum glucose in diabetic rats showed a significant increase compared to healthy groups ($P < 0.001$). Although diabetic rats showed an expansion and some cellular dispersion in marginal areas of glomeruli ($P < 0.05$), but glomerular diameter was not significantly higher than control group ($P > 0.05$). In addition, HP treatment of diabetic rats non-significantly improved these changes ($P > 0.05$).

Conclusion: Hypericum perforatum treatment of diabetic rats could in part protect renal glomeruli and this may be of clinical significance in diabetic nephropathy.

Key Words: Hypericum perforatum, Diabetes mellitus, Renal tissue, Rat