

Effect of Erythropoietin Hormone Supplementation on Hypoxia-Inducible Factor1-Alpha in Rat Kidneys with Experimental Diabetic Nephropathy

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Abstract : Background: Erythropoietin (EPO) is a hematopoietic factor with multiple protective effects. The aim of the present study was to investigate the potential effect of EPO administration on renal functions and hypoxia inducible factor 1-alpha (HIF-1a) in diabetic rat kidneys. Methodology: The current study was carried out on 40 male albino rats divided into four groups (n= 10 in each). Group I served as normal control, group II was the diabetic control, group III rats received EPO on the same day of diagnosis of diabetes mellitus (DM), while group IV received the first dose of EPO 2 weeks after the diagnosis of DM. Results: The results showed that EPO supplementation leads to a significant decrease in serum urea, urinary protein and creatinine clearance as well as a significant increase in renal HIF-1a in group III and IV rats compared to the diabetic control group (group II). However, fasting blood glucose was significantly decreased in group III as compared to the diabetic control group in the third week, but no significant difference was reported in the fourth week among groups II, III and IV. Conclusion: EPO administration leads to the improvement of renal functions and increased levels of HIF-1a in diabetic rats.

Keywords : erythropoietin, diabetic nephropathy, hypoxia-inducible factor1-alpha, renal functions

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