

عنوان مقاله:

The Effect of Vitamin D on Cellular Pathways of Diabetic Nephropathy

محل انتشار:

مجله گزارش های بیوشیمی و زیست شناسی مولکولی، دوره 7، شماره 2 (سال: 1397)

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خلاصه مقاله:

Background: Diabetic nephropathy is one of the most important microvascular complications and a major cause of morbidity and mortality in diabetic patients. This study was designed to investigate the effect of vitamin D on the expression of three key genes involved in the development of diabetic nephropathy. Methods: Twenty-four male Sprague–Dawley rats were randomly divided into three groups. The first group served as control and the other two groups received intraperitoneal injections of 45 mg/kg STZ to develop diabetes. The groups were treated for four weeks either with placebo or two vitamin D injections of 20,000 IU/kg. Serum glucose, insulin, and HbA1c levels, and AGE cellular receptor (RAGE), aldose reductase (AR) and glutamine: fructose-6-phosphate aminotransferase (GFAT)

gene expression were assessed in kidney tissue at the end of the experiment. Results: Vitamin D treatment resulted in a significant increase in insulin concentration, which could improve hyperglycaemia in diabetic rats. Serum HbA1c decreased slightly but insignificantly following the vitamin D injections. In addition, expression of GFAT, a key regulatory enzyme in the hexosamine pathway, was significantly reduced following vitamin D administration. Conclusions: Vitamin D may reduce diabetic nephropathy not only by improving blood glucose and insulin levels, but also by modulating hexosamine pathways in kidney

کلمات کلیدی:

.Diabetes Mellitus, Hexosamine pathway, Nephropathy, Vitamin D

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