Original Paper

Effect of barley grain (*Hordeum vulgare L.*) consumption during pregnancy in induced diabetic rats on kidney histological altrations of offsprings

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Abstract

Background and Objective: Diabetes mellitus can cause kidney histological changes. This study was done to evaluate the effect of barley grain (*Hordeum vulgare L.*) consumption during pregnancy in diabetic rats on kidney histological altrations of offsprings.

Methods: In this experimental study, 60 adult female albino rats, randomly allocated into four groups including: healthy with regular meals consumption as control, healthy which consumed barley (10 grams per each rat per daily), diabetic with regular meals consumption and diabetic group which consumed barley (10 grams per each rat per daily). Diabetes was induced by intraperitoneal injection of 45 mg/kg/bw of streptozotocin. After confirmation of pregnancy by observing the vaginal plug, on 21th day, the dams were anesthetized and embryos were removed. Crown rump length and weight of embryos were recorded. After kindney tissue processing, sections with 5 micrometer thickness were stained with H&E method.

Results: Interstitial tissue and capillary congestion, Bowman's capsule wall thickening, degeneration of epithelial tissue, distal and proximal tubules, incomplete formation of glomerular and inflammation were observed in embryos of diabeticts group. These tissues alterations significantly reduced in the embryos of diabetic group which consumed barley. The crown rump length of embryos significantly reduced in diabetic group in comparision with controls. There was not any diferences in crown rump length of embryos between diabetic consumed barley and diabetic group. The weight of embryos was non - significantly more in diabetic groups than controls. The weight of embryos reduced non - significantly in diabetic plus barley consumption in comparision with controls.

Conclusion: The consumption of barley is beneficial in reducing kidney histological alterations in embryos of diabetic rats.

Keywords: Diabetes mellitus, Embryo, Kidney, Barley grain, Rat

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Received 1 Dec 2013 **Revised** 8 Nov 2014 **Accepted** 18 Nov 2014

Cite this article as: Ramezani S, Minaei Zangi B, Sadoughi M, Mehrbod A, Kamrani Moghaddam L, Farmani M, Najd F. [Effect of barley grain (*Hordeum vulgare L.*) consumption during pregnancy in induced diabetic rats on kidney histological altrations of offsprings]. J Gorgan Uni Med Sci. 2015; 17(2): 31-37. [Article in Persian]