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Effects of Turmeric on Uterine Tissue in Rats with Metabolic Syndrome Induced by High Fructose Diet

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Abstract : Metabolic Syndrome, one of the common metabolic disorder, occurs with co-development of insulin resistance, obesity, dislipidemia and hypertension problems. Insulin resistance appears to play a pathogenic role in the metabolic syndrome. Also, there is a relationship between insulin resistance and infertility as known. Turmeric (Curcuma longa L.) a polyphenolic chemical is widely used for its coloring, flavoring, and medicinal properties, and exhibits a strong antioxidant activity. In this study, we assess the effects of turmeric on rat uterine tissue in metabolic syndrome model induced by high fructose diet. Thirty-two adult female Wistar rats weighing 220±20 g were randomly divided into four groups (n=8) as follows; control, fructose, turmeric, and fructose plus turmeric. Metabolic syndrome was induced by fructose solution 20% (w/v) in tap water, and turmeric (C.Longa) administered at the dose of 80 mg/kg body weight every other day by oral gavage. After the experimental period of 8 weeks, rats were decapitated, serum and uterine tissues were removed. Serum lipid profile, glucose, insülin levels were measured. Uterine tissues were fixed for histological analyzes. The uterine tissue sections were stained with hematoxylin-eosin (H & E) stain, then examined and photographed on a light microscope (Novel N-800Mx20). As a result, fructose consumption effected serum lipids, insulin levels, and insulin resistance significantly. Endometrium and myometrium layers were observed in normal structure in control group of uterine tissues. Perivascular edema, peri glandular fibrosis, and inflammatory cell increase were detected in fructose group. Sections of the fructose plus turmeric group showed a significant improvement in findings when compared to the fructose group. Turmeric group cell structures were observed similar with the control group. These results demonstrated that high-fructose consumption could change the structure of the uterine tissue. On the other hand, turmeric administration has beneficial effects on uterine tissue at that dose and duration when administered with fructose.

Keywords : metabolic syndrome, rat, turmeric, uterus
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