

Protective effect of ellagic acid and pumpkin seed oil against methotrexate-induced small intestine damage in rats.

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Abstract

Gastrointestinal toxicity is one of the most serious side effects in the methotrexate (MTX) treatment. This study was designed to investigate whether ellagic acid (EA) and/or pumpkin seed oil (PSO) had a protective effect on MTX-induced small intestine damage. Forty albino rats were randomized into five groups of 8 rats each. Group I served as a normal control group. In Group II, MTX was administered as a single dose (20 mg/kg) intraperitoneally. Groups III, IV and V were pre-treated respectively with either PSO (40 mg/kg), EA (10 mg/kg) or 0.2% DMSO (vehicle control) orally every day by gavage for 5 days and then they received MTX. All animals were sacrificed 5 days after the intraperitoneal injection of MTX for histopathological examination, estimation of serum prostaglandin E2 (PGE2) level, assay of tissue malondialdehyde (MDA), reduced glutathione (GSH) and nitric oxide (NO) levels and myeloperoxidase (MPO), xanthine oxidase (XO) and adenosine deaminase (AD) activities. Administration of EA and/or PSO decreased the intestinal damage, PGE2, MDA and NO levels and MPO, XO and AD activities and increased GSH level. These results suggest that EA and PSO protect the small intestine of rats from MTX-induced damage through their antioxidant and anti-inflammatory effects and thus have potential as a promising drug in the prevention of undesired side effects of MTX.

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