Summary

Methotrexate an antifolate drug. It is used as one of the first drugs that are used in cancer treatment. In addition, it is used in the treatment of psoriasis, rheumatic disease and in some immunological diseases. The major side effects of methotrexate are vomiting, diarrhea, mucositis and decreased nutrient absorption. The latter is because the methotrexate is causing damage and shortening of villi of small intestine.

The aim of this work is to study the histological changes that develop in the mucosa of the small intestine of the albino rats as result of methotrexate administration and to evaluate the protective role of vitamin A against the toxic effects of methotrexate on the mucosa of jejunum.

Thirty adult male albino rats were divided into three equal groups: control group, methotrexate (MTX)-treated group and Methotrexate and vitamin A treated group. In the control group, ten rats and were given sunflower oil; each rat received 0.5ml of sunflower oil daily by gastric tube and till the rats were sacrificed. In the methotrexate (MTX)-treated group, ten rats were given a single dose, 20 mg/kg of body weight of methotrexate which will be administrated intraperitoneally. In the Methotrexate and vitamin A treated group, ten rats were given Methotrexate in the same dose as in methotrexate (MTX)-treated group plus vitamin A (5000 Iu/kg/D dissolved in 10 ml sunflower oil). The dose of vitamin A was taken as each 1ml containing 5000 I.U/kg was administrated orally through gastric tube once daily, 5 days prior to MTX injection and

continued till the rats were sacrificed. After 20 days, the animals were sacrificed. These specimens were prepared for light and electron microscopic analysis.

The results of this present work have showed that the rats received MTX only had suffered from loss of activity, anorexia, nausea, vomiting, diarrhea, lethargy with significant loss of weight as early as two days after MTX treatment. These observations were not obviously shown in the rats administrated MTX plus vitamin.

Light microscopic examination showed that methotrexate produced degenerative changes as loss of normal jejunal architecture varying from distortion in configuration of villi up to detachment and separation of villi. The lamina propria of the intestinal villi showed infilteration with inflammatory cells and extravasation by RBCs, with congested blood capillary. Some paneth cells appeared ballooned with flat nucleus and others were degenerated. Depletion of the goblet cells in the villi was also seen. Electron microscopic examination showed that the methotrexate produced destruction of microvilli with increasing the numbers of lysosomes, vacuolated mitochondria and lipid droplet and vacuolation of the cytoplasm. Administration of vitamin A during the methotrexate injection had reduced the pathological changes induced by methotrexate and the severity of these changes in mucosa of the jejunum was less than those in the methotrexate group.