

### Third paper

## **Histological Study on the Possible Protective Effect of Co-enzyme Q10, Evening Primrose and Eesomeprazole on Indomethacin Induced Gastric Ulcer in Adult Male Albino Rats**

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### **Abstract**

**Introduction:** The non-steroidal anti-inflammatory drug (NSAID) Indomethacin is widely used especially in treatment of osteoarthritis and rheumatoid arthritis. However, it has many side effects; the most common of them is gastrointestinal intolerance and ulceration. Coenzyme Q10 (CoQ10) and Evening primrose (EP) were reported to have anti-inflammatory and antioxidant properties.

**Aim of the Work:** To investigate the histopathological effects of Indomethacin on the fundic mucosa of adult male albino rats and the possible protective role of Coenzyme Q10, Evening primrose and esomeprazole.

**Materials and Methods:** Forty eight adult male albino rats were randomized into 5 groups (N=8). Group I (Control). Group II (INDO): received 50 mg/kg of indomethacin dissolved in gum acacia orally. Group III (CoQ10+INDO): received Coenzyme Q10 10mg/kg for 2 days then INDO on the 2nd day 1 hour after CoQ10. Group IV (EP+INDO): received evening primrose intraperitoneally 10g/kg for 2 days then INDO on the 2nd day 1 hour after EP. Group V (ESP+INDO (: Subgroup Va (low dose): received 5mg/kg/day esomeprazole orally for 2 days then INDO on the 2nd day 1 hour after ESP. Subgroup Vb (high dose): treated as group Va but received 20mg/kg/day ESP. At the end of the experiment, ulcer index and antioxidant parameters were evaluated. The fundic mucosa was processed and stained with H & E, PAS stains as well as Caspase-3 and PCNA immunostains. Morphometric measurements and statistical analysis were done.

**Results:** Erosions, congestion, extravasated RBCs and inflammatory cell infiltration were detected in fundic mucosa of INDO group. In CoQ10+INDO group, EP+INDO and ESO+INDO (high dose) the structure of the mucosa was restored. There was marked increase in mucus secretion, significantly decreased ulcer index and decreased MDA level. A significant decrease in area % of PAS reaction in INDO group was revealed as compared with the other groups. There was a significant increase in area % of Caspase immunoreaction and a significant decrease in area % of PCNA expression in INDO group as compared with other groups.

**Conclusion:** Coenzyme Q10, Evening primrose and esomeprazole (high dose) can partly protect the fundic mucosa against indomethacin induced damage.

**Keywords:** Indomethacin, gastritis, CoQ10, evening primrose, esomeprazole, caspase, PCNA and rat.