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Gastroprotective effects of the insulin sensitizers, rosiglitazone and metformin, in indomethacin-induced gastric ulcer in type 2 diabetic rats.

Morsy MA, Ashour OM, Fouad AA, Abdel-Gaber SA.

Department of Pharmacology, Faculty of Medicine, El-Minia University, El-Minia, Egypt.

1. Gastric ulcer occurs with high prevalence in type 2 diabetic patients. Of all drugs used in the treatment of type 2 diabetes, the insulin sensitizers, thiazolidinediones (e.g. rosiglitazone) and metformin, exhibit additional effects in ameliorating oxidative stress and inflammation; rendering them attractive candidates for prevention of gastric ulcer in type 2 diabetics.

2. The aim of the present study is to evaluate the gastroprotective effects of the insulin sensitizers, rosiglitazone and metformin, in indomethacin-induced gastric ulcer in type 2 diabetic rats. The anti-ulcer activity was also evaluated in non-diabetic rats.

3. The animals were killed 3 h after indomethacin administration and their gastric juice, and mucosal tissue were used for gastric injury evaluation. Ranitidine was used as a reference drug.

4. Both rosiglitazone and metformin resulted in gastroprotective effects as evident by significant decrease in ulcer index, and gastric juice free and total acid outputs as well as gastric mucosal malondialdehyde level, with a concomitant increase in gastric juice pH (only with rosiglitazone), and mucin concentration, and gastric mucosal concentration of nitric oxide, along with catalase activity as compared to diabetic non-treated rats. On the other hand, rosiglitazone, and metformin did not alter peptic activity and gastric mucosal prostaglandin E(2) content particularly in diabetic group as compared to non-treated groups.

5. In conclusion, rosiglitazone and metformin protect type 2 diabetic rats from indomethacin-induced gastric ulceration most possibly through their antisecretory properties, enhancement of mucosal protection and their antioxidant activities. Rosiglitazone seems to be superior to metformin in gastroprotection.

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