Abstract

Background:

Nonsteoidal anti-inflammatory drugs (NSAIDs) are commonly used drugs in treatment of arthritis ,inflammation and cardiovascular protection. However, NSAIDs are associated with many gastrointestinal complications such as ulceration, hemorrhage, perforation and exacerbation of inflammatory bowel disease. The major pathogenic factor of these multiples has been attributed to action of NSAIDs on inhibition of cyclooxygenase and prostaglandin decreasing. The purpose of present study were investigation gastro-protective of grape seed proanthocyanidin extracts (GSPEs) against indomethacin induced ulcer in adult female rabbits.

Methods and experimental design :

Proanthocyanidin had been extracted from black grape seeds which handpicked from market with full skin intact. The skin and flesh are then removed and seeds were separated. Upon drying, they grinded to fine powder and kept in dark container at temperature 25c. The method used for extraction were methanol\water (80:20) solvent.

Sixty adult female rabbits were divided in to five groups, twelve rabbits for each group. Each group divided in to sub groups comprising six animals (sub group I kept without gestation while sub group II kept for gestation), all group induced gastric ulcer except negative control group.

Group1:- healthy (-ve control group) oral administration 3ml of normal saline (0.9 of NaCL) for 10 days.

Group 2:- oral administration with indomethacin 75mg\kg B.W. dissolve with 3ml of normal saline for two days(+ve control group) and remain without treated for10 days.

Group 3:- treated with indomethacin 75mg\kg B.W. dissolve with 3ml of normal saline for two days, then treated with proanthocyanidin 100mg\kg B.W. dissolve with 3ml of normal saline for 10 days.

Group 4:- treated with indomethacin 75mg\kg B.W. dissolve with 3ml of normal saline for two days, then treated with proanthocyanidin 200mg\kg B.W. dissolve with 3ml of normal saline for 10 days.

Group 5:- treated with indomethacin 75mg\kg B.W. dissolve with 3ml of normal saline for two days, then treated with ranitidine 50mg\kg B.W. dissolve with 3ml of normal saline for 10 days.

After the period of experiment blood samples were collected (from sub group I) by cardiac puncture then the animals were sacrificed. These samples were used for the calculation of blood MDA, some hormones concentrations and biochemical parameters. The stomachs were prepared for estimating the gastric PH and volume of gastric juice, ulcerated area (U.A), tissue MDA, mucin production as well as gross and histopathological examination of stomach. In addition to histopathological examination for thyroid, pancreas, kidney, adrenal, liver, ovary and uterus.

Results:

The results of present study revealed the following

1- A significant decrease ($P \leq 0.05$) in gastric volume and ulcer area of gastric ulceration female rabbits treated with (PA at a dose 100mg/kg), (PA at a dose 200mg/kg) and Ranitidine at a dose 50mg/kg compared with(+ve) group. The results of ulcer area showed inhibition 100% in gastric ulceration female rabbits treated with (PA at dose 100mg/kg), (PA at dose 200mg/kg) and showed non-significant change compared with control group while the ulcer area showed 71.09% in gastric ulceration female rabbits treated with Ranitidine and showed significant increase ($P \leq 0.05$) compared with (-ve) control group.

2- The results of gastric pH in gastric ulceration female rabbit treated with (PA at a dose 100mg/kg), (PA at a dose 200mg/kg) and Ranitidine at a dose 50mg/kg showed a significant increase ($P \leq 0.05$) compared with (+ve) control group.

3- A significant decrease ($P \leq 0.05$) in glucose concentration of gastric ulceration female rabbits treated with (PA at dose 100) and (PA at dose 200) compared with positive group while the results showed non-significant change in glucose concentration of gastric ulceration female rabbits treated with Ranitidine compared with (+ve) control.

4- A significant decrease ($P \leq 0.05$) in serum MDA and gastric tissue MDA of gastric ulceration female rabbits treated with (PA at a dose 100),(PA at a dose 200) and Ranitidine at a dose 50mg/kg compared with (+ve) control group.

5- A significant increase ($P \leq 0.05$) in RBC, Hb, PCV and MCHC but there is significant decrease ($P \leq 0.05$) in MCV of gastric ulceration female rabbits treated with (PA at dose 100) , (PA at dose 200) and Ranitidin at a dose 50mg/kg compared with (+ve) control group.

6- The results revealed non-significant changes in WBC of gastric ulceration female rabbits treated with (PA at a dose 100) and (PA at a dose 200) compared with (+ve) control group and (-ve) control group while the results showed significant decrease ($P \leq 0.05$) in WBC of gastric ulceration female rabbits treated with Ranitidine group compared with(+ve) control group, (-ve) control group and another groups.

7- The results revealed significant decrease ($P \leq 0.05$) in total cholesterol, triglyceride, LDL and VLDL of gastric ulceration female rabbits treated with (PA at a dose 100), (PA at a dose 200) and Ranitidin group compared with (+ve) while the results of HDL showed significant increase ($P \leq 0.05$) in gastric ulceration female rabbits treated with(PA at a dose 100), (PA at a dose 200) Ranitidine group compared with(+ve) control.

8- The results indicated a significant ($P \leq 0.05$) decrease in serum FSH, LH, E_2 and P_4 concentration of gastric ulceration female rabbits (+ve control group) and ranitidine group compared with(-ve control group) and another treated groups (PA at a dose 100mg/kg and PA at a dose 200 mg/kg).

9- The results indicated a significant increase ($P \leq 0.05$) in TSH concentration of gastric ulceration female rabbits (+ve control group) compared with another groups While The results indicated a significant decrease ($P \leq 0.05$) inT_3 and T_4 concentration of gastric ulceration female rabbits (+ve control group) compared (-ve control group) and PA at a dose 100mg/kg and PA at a dose 200 mg/kg.

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