ASSESSMENT OF EFFICACY OF QUERCETIN-5’-SULFONIC ACID SODIUM SALT IN THE TREATMENT OF ACUTE CHROMIUM POISONING: EXPERIMENTAL STUDIES

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Hexavalent chromium compounds exhibit higher toxicity than its trivalent compounds since chromium ions in the +6 oxidation state easily cross biological membranes. It has recently been proposed that substances reducing chromium ions from the +6 to the less toxic +3 oxidation state can be beneficial in management of acute chromium poisoning. In vitro studies also demonstrated quercetin-5’-sulfonic acid sodium salt (NaQSA) to reduce chromium ions from the +6 to the +3 oxidation state. The aim of the study was to determine efficacy of NaQSA in treatment of acute poisoning with a hexavalent chromium compound. The experiment was carried out on male and female Wistar rats which were divided into 4 experimental (A, B, C, D) and control (K) groups. All animals received intragastrically a single CrO₃ dose equal to its LD₅₀. Thirty minutes after administration of CrO₃, NaQSA was administered intragastrically at a dose of 50 mg/kg (group A) and 100 mg/kg (group B). In groups C and D, NaQSA was administered ip 2 h after administration of CrO₃ and then twice a day for 4 days at doses of 50 mg/kg (group C) and 100 mg/kg (group D). Only intragastric administration of NaQSA at a dose of 100 mg/kg decreased mortality in acute poisoning with CrO₃. In groups B and D, aminotransferase activity was statistically significantly dropping from day 7 of the experiment in comparison with the group K, which indicates lesser damage to the liver in animals treated with NaQSA. Bilirubin concentrations in groups B and D were also much lower than in the group K, but the difference between average bilirubin levels in these groups and the K was not statistically significant. The results of the study suggest the usefulness of NaQSA in the treatment of poisoning with hexavalent chromium compounds.

**Key words:** chromium trioxide, acute poisoning, NaQSA, rats