

Protective effect of resveratrol and quercetine on heart against acetaminophene-induced toxicity in male rat

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Background: Resveratrol and quercetine have useful effects on cardiovascular system. resveratrol and quercetine were shown to decline blood lipid. antidiabetic and antioxidant effects of quercetine and resveratrol have been surveyed alone. However, this experiment aimed at investigative protective effects of this combination in rats with acetaminophene-induced toxicity.

Methods: The rats, weighting between 200-220 grams, were randomly divided into 6 groups (n=7): 1-Control (only receive chow diet), 2- acetaminophene at day of 0 and then receive normal saline for 6 days (640 mg/kg bw, po), 3- acetaminophene at day of 0 and then receive N-acetylcysteine for 6 days (150 mg/kg bw, po), 4- acetaminophene at day of 0 and then receive Quercetine for 6 days (20 mg/kg bw, po), 5- acetaminophene at day of 0 and then receive Resveratrol for 6 days (30 mg/kg bw, po), 6- acetaminophene at day of 0 and then receive Resveratrol (30 mg/kg bw, po) + quercetine (20 mg/kg bw, po) for 6 days. After 7 days of treatment heart were removed and their histology was examined by pathologist. Antioxidant capacity of heart and plasma as well as heart enzyme were determined.

Results: MDA levels in the serum and heart were increased in toxic group, whereas total antioxidant reduced. MDA levels significantly reduced and total antioxidant increased in Resveratrol and Quercetine compared with non-treated group. These changes were more significant in combination group ($p < 0.05$). Creatine phosphokinase-MB, lactate dehydrogenase and aspartate aminotransferase significantly increased in toxic group. These enzyme significantly reduced by Resveratrol and Quercetine. These reduction were more significant in combination group ($p < 0.05$). The structure change of heart in hematoxylin and eosin staining was not significant, while trichrome staining showed that heart changes normalized in Resveratrol and Quercetine groups. These reductions were more significant in combination group.

Conclusion: treatment of rats with Resveratrol and Quercetine improved cardiac changes by an additive effect. The useful effects of this combination on heart function were associated with normalize of MDA, total antioxidant, heart enzymes and an improved structure change.

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