

Role of nitric-oxide in cardiac effects of glibenclamide in rat

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*Abstract

Background: There are reports of cardiovascular complications in patients with diabetes that are caused by glibenclamide. On the other hand, nitric oxide has been mentioned as an important factor in the physiology and disorders of the heart in recent studies.

Objective: The aim of this study was to determine the role of nitric-oxide in cardiac effects of glibenclamide.

Methods: This experimental study was conducted in 42 male rats at Tehran University of Medical Sciences in 2011. Rat atria were isolated after anesthesia and were transferred to an organ bath containing oxygenated Krebs' solution. Atrial contractions were measured using a physiograph. The samples were divided into 7 groups (n=6): Control group in which the atrial contractions were recorded without medication, Tween-80 group, L-arginin group, L-NAME group, Glibenclamide (Glb) group, Glb+L-arginin group in which the atrial contractions were recorded in the presence of glibenclamide and L-Arginin, and Glb+L-NAME group in which the atrial contractions were recorded in the presence of glibenclamide and L-NAME. Data were analyzed using two-way ANOVA.

Findings: Glibenclamide increased the amplitude of atrial contractions. L-NAME and L-arginin did not change the effect of glibenclamide. L-arginine decreased the amplitude of atrial contractions and L-NAME increased the amplitude of atrial contractions.

Conclusion: The effect of glibenclamide is independent of nitric-oxide.

Keywords: Glibenclamide, Nitric-Oxide, Heart Atria, Rats

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