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School of Pharmacy and Pharmaceutical Sciences
Isfahan University of Medical Sciences

Effects of pharmacologic preconditioning with natural honey on the left ventricle perfusion pressure in isolated heart

F. Jafarpour[1,*], M. Najafi[2]

[1]*School of Pharmacy, Tabriz University of Medical Sciences, Tabriz, Iran*
[2]*Department of Pharmacology, School of Pharmacy, Tabriz University of Medical Sciences, Tabriz, Iran*

Background and Aims: Preconditioning is a process triggered by brief ischemia which enables heart to resist against injuries of prolonged period of ischemia. Short-term administration of drugs before ischemia (pharmacologic preconditioning) have shown protective effects against ischemia/reperfusion injuries. In the present study, the effects of short-term administration of natural honey (as a pharmacologic preconditioning agent) on the left ventricle perfusion pressure were investigated in isolated rat heart.
Methods: The isolated t hearts were divided into two groups randomly (n=8 in each group) and mounted on a Langendorff apparatus then perfused with Krebs-Henseleite solution at constant pressure. Following 20 min stabilization, the hearts were perfused by enriched Krebs solution with natural honey (0.5 and 1%) for 15 min. Left ventricle perfusion pressure was recorded by a latex balloon located in the left ventricle. Left ventricle end diastolic pressure was fixed at 8-10 mmHg. ECG was recorded by special leads on a physiograph during the experiment.
Results: Perfusion of natural honey (0.5%) decreased left ventricle perfusion pressure from 125 mmHg (control) to 68 mmHg (54%, $p<0.01$). Similarly, the pressure was reduced from 124 mmHg to 55 mmHg by administration of 1% natural honey solution (56%, $p<0.001$). Maximum effect of honey on ventricle perfusion pressure was detected in 1-2 minutes after its perfusion. Reduction of the pressure was continued throughout the experiment.
Conclusions: This study showed protective effects of pharmacologic preconditioning by natural honey as reduction of ventricle perfusion pressure.

Keywords: Honey; Preconditioning; Left ventricle perfusion pressure; Rat; Isolated heart