

Effect of L-arginine on Function of Mitochondria in Ischemia – Reperfusion Myocardial Cell in Rabbits

Dan Chen¹

(MDA) concentration, superoxide dismutase (SOD) activity, myocardial adenosine triphosphate (ATP), Adenosine diphosphate (ADP), adenosine monophosphate (AMP) content, the total amount of AMP (TAN), and energy charge (EC), were respectively determined.

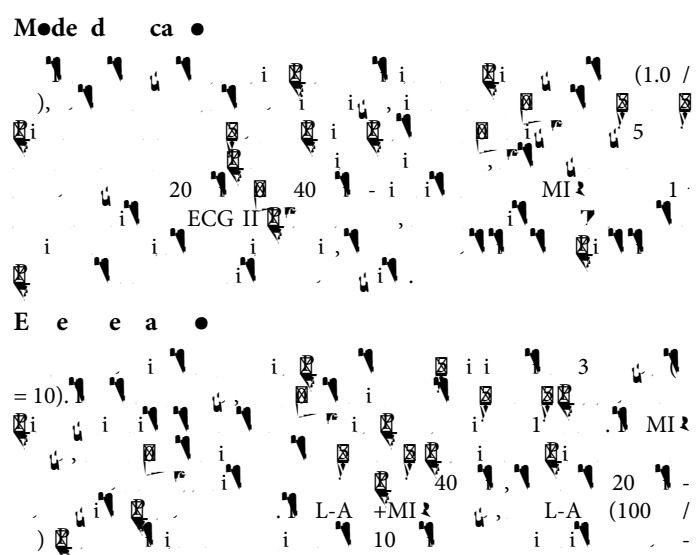
Results: The mitochondrial respiratory control rate (RCR), state respiration rate (V3), and SOD in L-Arg +MIR group were significantly higher than those of MIR group, while state respiration rate (V4), ($[Ca^{2+}]_m$), and MDA were significantly lower than those of MIR group, myocardial ATP, ADP, TNA and the EC were significantly higher than those of group MIR; when compared with the group C, there was no significant difference in terms of V3, V4, SOD, MDA, and AMP, TAN between the L-Arg +MIR group and control group (group C).

Conclusion: It is indicated that L-arginine can reduce the level of the oxygen free radicals and attenuate calcium overload to improve the function of myocardial mitochondria during myocardial ischemia reperfusion injury.

Materials and Methods

Drug and Materials

L-arginine (L-A), malondialdehyde (MDA), adenosine triphosphate (ATP), adenosine diphosphate (ADP), adenosine monophosphate (AMP), superoxide dismutase (SOD), and malic acid (MA) were purchased from Sigma (St. Louis, MO, USA). The rabbit heart was obtained from the Experimental Animal Center of Wenzhou Medical College (Wenzhou, Zhejiang, China).



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