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Abstract: The effects of cardiotrophin-1 on hemodynamics, cardiac function, cardiomyocyte apoptosis, and expression of P53, Fas, Bax and Bcl-2 proteins in myocardium were determined in a rat model of acute myocardial infarction. Twenty-four male Sprague-Dawley rats weighing approximately 310 g were subjected to left coronary artery ligation. Seven days before surgery, the rats were randomized to receive cardiotrophin-1 (treated group) or phosphate-buffered saline (control group). Recombinant rat cardiotrophin-1 (2 µg in 1 ml phosphate-buffered saline) or phosphate-buffered saline (1 ml) was administered daily via the tail vein for 7 days (n=12 for each group). Hemodynamic parameters, apoptotic index, P53, Fas, Bax and Bcl-2 expression in myocardium were measured at 24 hours after coronary ligation. As compared with control animals, rats treated with cardiotrophin-1 had significantly higher mean arterial pressure, left ventricular systolic pressure and the maximum rate of left ventricular pressure rise or fall, and significantly lower left ventricular end-diastolic pressure. Cardiotrophin-1 pretreatment did not affect the heart rate, heart weight, body weight or the ratio of heart weight to body weight. The number of apoptotic cardiomyocytes in cardiotrophin-1 treated group was less than that in control group [(15.8±5.2) % vs (34.6±7.7) %, P<0.01]. Cardiotrophin-1 pretreatment significantly inhibited P53, Fas and Bax, and increased Bcl-2 expression in myocardium.

Keywords: myocardial infarction, cardiotrophin-1, apoptosis

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1) Rat infarct model

Cardiotrophin-1 improves hemodynamics and reduces cardiomyocyte apoptosis

...continued...

2) Administration of CT-1

3) Hemodynamic monitoring

4) Terminal deoxynucleotidyl transferase-mediated dUTP-Biotin in situ nick-end labelling (TUNEL)
5) Immunohistochemical staining of P53, Fas, Bax, and Bcl-2 proteins in myocardium

6) Statistical analysis

1) Effect of CT-1 on hemodynamics
Table 2  The changes of fibronectin expression in three groups (P<0.05 compared with the control group).

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<tr>
<th>Group</th>
<th>Control</th>
<th>Group A</th>
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*P<0.05 compared with the control group.
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