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EFFECTS OF YIQIHUOXUE MEDICINE ON VENTRICULAR FIBRILLATION THRESHOLD AND CONNEXIN 43 IN RATS WITH MYOCARDIAL INFARCTION

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Objective To explore the effects of Shengmai injection and Xuesaitong injection, compound Chinese herbal medicine, on ventricular fibrillation threshold, heart structure and connexin 43 (Cx43) in rats with myocardial infarction (MI).

Methods Male SD rats were randomly divided into sham operation group, model group and YiqiHuoxue (YQHX) group (combine Shengmai injection with Xuesaitong injection). MI model of rats was established by ligating left anterior descending coronary artery, and rats in sham operation group were only punctured without ligating. Rats were treated with Shengmai injection and Xuesaitong injection for one month from next day after modelling. After treatment, ventricular fibrillation threshold was detected by electricity stimulation, while heart weight index, left ventricular internal diameter and percentage of myocardial infarction were measured, and expression of Cx43 mRNA in myocardium were detected by real-time fluorescent quantitative PCR, and expression of Cx43 protein observed by immunohistochemical methods.

Results Compared with sham operation group, ventricular fibrillation threshold decreased (4.63 ± 1.19) versus (10.14 ± 3.08) V, heart weight index increased (4.11 ± 0.52) versus (3.42 ± 0.32) mg/g, left ventricular internal diameter increased (5.98 ± 1.28) versus (3.33 ± 0.29) mm, while expressions of Cx43 mRNA decreased (0.61 ± 0.26) versus (1.03 ± 0.28) and protein decreased (0.81 ± 0.17) versus (1.70 ± 0.43) in the model group. Compared with model group, ventricular fibrillation threshold increased (11.00 ± 3.69) versus (4.63 ± 1.19) V, heart weight index decreased (3.69 ± 0.20) versus (4.11 ± 0.52) mg/g, left ventricular internal diameter decreased (4.51 ± 0.83) versus (5.98 ± 1.28) mm, the percentage of myocardial infarction decreased (25.21 ± 11.26) versus (41.87 ± 12.32)%, while expressions of Cx43 mRNA increased (0.99 ± 0.27) versus (0.61 ± 0.26) and protein increased (1.42 ± 0.13) versus (0.81 ± 0.17) in the YQHX group. These results were statistically significant ($p < 0.05$ or $p < 0.01$), after one month of operation.

Conclusion Shengmai injection and Xuesaitong injection have beneficial effects on ventricular fibrillation threshold in rats with MI. The mechanism can be related with improving heart structure and reducing Cx43 damage after MI.