Tiaogan Qingxin Granule treatment increases myocardial connexin 43 expression in a rat model of arrhythmia

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ABSTRACT. Myocardial ischemia-induced arrhythmia, especially ventricular arrhythmia, is the main reason for sudden cardiac death. Therefore, ischemic ventricular arrhythmia-targeted treatments are urgently needed. The mechanism of Tiaogan Qingxin Granule in premature ventricular beat (PVB) treatment was explored in arrhythmic rats pretreated with Tiaogan Qingxin Granule. Sprague-Dawley rats (N = 40) were randomly divided into 4 groups: sham-operated, arrhythmia model, Wenxin Granule, and Tiaogan Qingxin Granule. The ischemic arrhythmia model was established by ligating the left anterior descending coronary artery. The Tiaogan Qingxin Granule group was treated intragastrically for 7 days before surgery. Sham-operated rats underwent thoracotomy without coronary artery ligation. Myocardial infarction rate was measured using the triphenyltetrazolium chloride method and Cx43 expression was quantified by western blotting. Compared to the arrhythmia model group, the Tiaogan Qingxin Granule group showed a significant reduction in the myocardial infarct size and myocardial infarction rate (P < 0.01). Cx43 expression in the left ventricular myocardial tissues was significantly lower in the
arrhythmia model group than in the sham-operated group (P < 0.01), but significantly higher in the Tiaogan Qingxin Granule group (P < 0.01). Intergroup difference in the relative Cx43 expression between the Tiaogan Qingxin Granule and Wenxin Granule groups was not significant (P > 0.05). Thus, Tiaogan Qingxin Granule reduced the myocardial infarct size, lowered the myocardial infarction rate, and increased Cx43 expression, possibly by increasing blood supply to the cardiac muscles. In conclusion, Tiaogan Qingxin Granule may be useful for treating ischemic PVB.

Key words: Tiaogan Qingxin Granule; Myocardial infarction; Ischemic premature ventricular beats; Animal models