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GENETIC STUDY OF ISCHEMIA-INDUCED VENTRICULAR ARRHYTHMIA ASSOCIATED WITH POTASSIUM CHANNELS

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Objective Recent reports and our preliminary research showed that sodium channel gene is one of the disease-causing gene in ischemia-induced ventricular arrhythmia. In this study, candidate potassium genes were screened using direct sequencing to reveal the genetics of ischemia-induced ventricular arrhythmia.

Methods DNA were extracted from 23 patients with ischemia-induced ventricular tachycardia/ventricular fibrillation. Eleven candidate genes were screened with direct sequencing methods. Gene variation was compared with 100 normal control subjects to ensure gene mutation or SNP.

Results Mutation from 11 potassium channels has not been found in 23 patients. 10 single nucleotide polymorphisms in 11 potassium channel genes (KCNJ12-G216G, KCNJ12-Q192H, KCNJ12-P156L, HERG-F513F, HERG-I489I, KV1.5-P513P, Kir2.1-L382L, Kir6.2-V337I, KCNQ1-P448R, KCNQ1-S546S) have been found. The G216G is a novel SNP in KCNJ12 gene. F513F was found in five patients while in 44 normal control individuals. There is a difference in the incidence of F513F between the two groups ($p < 0.05$).

Conclusion A novel SNP of G216G was discovered in Chinese people. The SNP of F513F might be a predisposing factor in ischemia-induced ventricular arrhythmia.