Objective: Recent research shows that sodium channel gene mutation is one of the disease-causing gene in ischemia-induced ventricular arrhythmia. In this study, in order to reveal the relationship between ischemia-induced ventricular arrhythmia and potassium channel mutation.

Methods: 23 patients with ischemia-induced ventricular arrhythmia were selected. 5ML peripheral blood was taken and DNA extracted. 11 candidate genes including HERG, KCNQ1, KCNE1, KCNE2, KCNJ2, KCNJ3, KCNJ8, KCNJ11, KCNJ12, KCND3 and KCNAS were screened with direct sequencing methods.

Results: 10 Potassium channel SNP have been found. The G216G is a novel SNP, which shows a change from T base to C base at the position of 1353 on the third exon of KCNJ12 gene. The SNP distribution from KCNJ12-Q192H, KCNJ12-P156L, HERG-I489I, KV1.5-P513P, Kir2.1-L382L, Kir6.2-V337I, KCNQ1-P448R and KCNQ1-S546S are similar with reported. The SNP of F513F is at the position of 1545 C base substitution T base on the seventh exon of the HERG gene. 5 patients have been found the SNP of F513F while 44 in the control group. Chi-square test shows that there is a difference in the incidence of the F513F SNP between the two groups.

Conclusion: No potassium channel gene mutation has been found. A novel SNP of KCNJ12-G216G was discovered in Chinese people. The SNP of HERG-F513F might be a predisposing factor in ischemia-induced ventricular arrhythmia.

Keywords: ischemia, ventricular arrhythmia, potassium channel