



Association of *KCNJ11* with impaired glucose regulation in essential hypertension

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ABSTRACT. *KCNJ11* is one of the candidate genes for type 2 diabetes, confirmed by genome wide association study, but there are little data on the relationship between *KCNJ11* and impaired glucose regulation in essential hypertension patients. To identify the effect of E23K and I337V in the *KCNJ11* gene on susceptibility to impaired glucose regulation, we conducted a case control study in 1125 essential hypertension patients with or without impaired glucose regulation among a Han Chinese population. We also evaluated the impact of two SNPs on insulin sensitivity and glucose tolerance estimated through an oral glucose tolerance test. In our case control study, no association

of E23K and I337V with impaired glucose regulation was found using any genotypic models. However, lysine carriers of E23K showed a significant association with decreased insulin (30 min) and Cederholm index, and valine carriers of I337V showed association with a lower Cederholm index. All the quantitative tests were performed by linear regression, with adjustment for gender, age, body mass index, blood pressure, and angiotensin-converting enzyme inhibitor/angiotensin receptor blocker treatment. These findings provided evidence that the *KCNJ11* gene plays a role in the pathogenesis of decreased insulin sensitivity in essential hypertension patients.

Key words: *KCNJ11*; Insulin sensitivity; Glucose tolerance; Essential hypertensive