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Effects of calcium channel gene mutations on adverse drug reactions of Ritodrine in patients with preterm labor

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Ritodrine is a beta2-adrenergic receptor (ADRB2) agonist that is used as a tocolytic agent. It has been known that, despite of tocolytic effect, ritodrine induces several adverse drug reactions such as tachycardia and pulmonary edema. Given its potential to stimulate calcium channel on cardiac muscle cell, this study aimed to investigate relationship between *CACNA1C* gene mutation and adverse drug reaction of ritodrine. Genomic DNAs were extracted from 178 patients' blood samples from Ewha Womans University Mokdong Hospital. Single nucleotide polymorphisms (SNPs) of *CACNA1C* which have more than 20% of minor allele frequency were selected and analyzed using the SNaPshot and Taqman genotyping assays. *CACNA1C* rs10774053 (A>G) and rs215994 (T>C) showed a certain trend toward significance. Variant homozygote carriers with G allele had more side effects than those with A allele (p=0.092) in rs10774053. On the contrary, in rs215994, variant homozygote carriers with C allele had fewer incidence of adverse drug reactions than those with T alleles (p=0.095). Multivariate analysis showed that patients with GG genotype in rs10774053 had 3.42 times more adverse events than other genotypes (95% CI=1.32-8.88, p=0.012). In conclusion, our results suggested that *CACNA1C* gene was related to adverse drug reactions of ritodrine in Korean preterm labor patients. Further research using large sample size in multicenter is required to confirm this study result.

Biography

Min Young Baek is currently a Masters student of Clinical Pharmacy at College of Pharmacy and Division of Life and Pharmaceutical Sciences, Ewha Womans University. She has completed her PharmD at Ewha Wamans University in 2015. Her research is focused on association of genetic polymorphism with drug response and adverse effects.

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