An ideal antiarrhythmic drugs for atrial fibrillation extracted from plants

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An ideal antiarrhythmic agent would selectively prolong the action potential duration more in extraordinarily depolarized cardiac myocytes than in normal cells, and show tissue selectivity. The number of patients suffering from atrial fibrillation is increasing and many cardiologists is trying to develop the ideal antiarrhythmic drugs for atrial fibrillation. Previously, we found out that the extracts from plants selectively inhibited the hKv1.5 current expressing predominantly in human atrium without affecting the HERG current expressing mainly in ventricle. From those results, we proposed that the extracts from plants would be one of the leading compound in developing the ideal antiarrhythmic drugs for atrial fibrillation.
In this study, we examined the effects of the extracts on the action potentials in rabbit heart using conventional microelectode technique. The extracts prolonged the action potential durations of atrial, ventricular myocytes and Purkinje fibers in a dose-dependent manner. However, the effect of the extract on atrial APD was frequent dependent whereas the effect of the extract on the APDs of ventricular myocytes and Purkinje fibers was not frequency dependent. Additionally, the extract-induced hKv1.5 block was frequency-dependent and the extract inhibits the human atrial K+ current. These results stongly suggest that the extract could be an ideal compound for atrial fibrillation.

[PA1-30] [04/20/2001 (Fri) 10:30 - 11:30 / Hall 4]

Resverotrol inhibits the degranulation of mast cells by interfering the IgE receptor-mediated regulation of pyruvate kinases in RBL-2H3 cells

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Previously we have reported the structure-activity relationship of hydroxystilbens on the inhibtion of mast cell degranulation, and resveratrol was one of the most potent compounds tested. Here we examined the effect of resveratrol on tyrosine phosphorylation of several signaling components of Fcε RI, the high affinity IgE receptor. Resveratrol did not affect the tyrosine phosphorylation of Syk, and showed some variable effects on PLC-γ2, and consistent inhibition on pyruvate kinase and MAPK. The pyruvate kinase is known to be inhibited and tyrosine-phosphorylated when FcεRI is cross-linked. Resveratrol, when tested for the pyruvate kinase activity, inhibited the FcεRI-mediated inhibition of pyruvate kinase activity (disinhibition). These results show that, when we consider that MAPK is not important for the regulation of the degranulation of mast cells, resveratrol inhibits mast cell degranulation by interfering with the FcεRI-mediated inhibition the pyruvate kinase.

[PA1-31] [04/20/2001 (Fri) 10:30 - 11:30 / Hall 4]

Antimicrobial activity of the ethyl aceate extract of Sophora flavescens Ait

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