Cardiac effects of a specific I_f channel blocker ivabradine in anesthetized rabbits: simultaneous assessment of the atrial and ventricular automaticity

Satoshi Kawakami, Yoshinobu Nagasawa, Megumi Aimoto, Akira Takahara

Dept. Pharmacol. Ther., Fclt. Pharmaceut. Sci. Toho Univ.

We simultaneously assessed effects of a specific I_f channel blocker ivabradine on the atrial and ventricular automaticity in anesthetized rabbits. Under isoflurane anesthesia, the atrioventricular node of NZW rabbits (n=3) was ablated by application of radiofrequency energy, and stable idioventricular escaped rhythm was observed. The surface lead II electrocardiogram was measured to monitor changes in the atrial rate (AR) and ventricular rate (VR). The monophasic action potential (MAP) was recorded from the right ventricle to assess the MAP duration (MAP_{90}). Intravenous administrations of ivabradine hardly affected the AR or VR at 0.01 and 0.1 mg/kg. Additional administration of ivabradine at 1.0 mg/kg decreased both AR and VR by 45 and 51 beats/min, respectively. Moreover, the MAP_{90} was prolonged with decrease of the VR, and torsade de pointes was induced in one animal. These results suggest that ivabradine affects the ventricular as well as the atrial pacemaker activity with a similar potency.