Electropharmacological analysis of ranolazine in vivo using the halothane-anesthetized dogs

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Introduction: Ranolazine has been shown to experimentally and clinically exert an anti-atrial fibrillatory effect, of which electropharmacological profile was not thoroughly assessed to clarify the efficacy.

Methods: Ranolazine dihydrochloride was administered at 0.3 and 3 mg/kg, i.v. to the halothane-anesthetized dogs (n=5).

Results: The low dose increased the heart rate (HR) and cardiac output (CO), whereas no significant change was observed in the mean blood pressure (MBP) or ventricular contraction. It enhanced the atrioventricular conduction, but suppressed the ventricular conduction without any change in the repolarization period. The high dose decreased the HR, MBP, ventricular contraction and CO. It prolonged the repolarization period and T_{peak}-T_{end} besides the same effects on the atrioventricular and ventricular conduction as the low dose, but it did not alter the J-T_{peak}c. It prolonged the atrial (AERP) and ventricular effective refractory period (VERP) by 21 and 29 ms, respectively, giving ΔAERP/ΔVERP of 0.72. **Conclusions:** Ranolazine has cardiodepressive action along with the ventricular depolarization and repolarization delay. Since ΔAERP/ΔVERP of dronedarone, amiodarone, bepridil and *dl*-sotalol was reported to be 1.9, 1.6, 1.0 and 1.1, respectively, ranolazine may have a limited efficacy against atrial fibrillation.