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Studying the effects of antiarrhythic drugs on restitution properties of action potential duration of canine ventricular cells. BINAYA TULADHAR, HANA DOBROVOLNY, Texas Christian University — Restitution describes a functional relationship between the action potential duration (APD) and the preceding diastolic interval (DI). It plays an important role in the function of the heart and is believed to determine the stability of heart rhythms. We investigate the effects of various antiarrhythmic drugs on dynamic and standard (S1-S2) restitution properties of APD of ventricular cells by using a canine ventricular cell model. The restitution hypothesis suggests that the slope of the restitution curve governs the transition to alternans, believed to be a precursor to the development of ventricular arrhythmias, particularly ventricular fibrillation (VF). Our study examines the slope of these restitution curves for three classes of drug to determine whether they are proarrhythmic or antiarrhythmic and to test the hypothesis for the prediction of alternans.

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