Atrial and Ventricular Remodeling in Hypertensive Heart Disease - New Insights From an Old Model

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Hypertension may cause left ventricular (LV) hypertrophy, heart failure and atrial fibrillation. While ventricular remodeling has been studied intensively for decades, atrial remodeling in hypertensive heart disease has been largely neglected. Recent clinical evidence suggests, however, that functional remodeling of the atria is an important predictor for adverse events in hypertrophy and heart failure. Using an established rat model of hypertension, we studied functional atrial remodeling in early and late stages of hypertensive heart disease including the transition from compensated LV hypertrophy to heart failure. The results reveal progressive remodeling of atrial myocyte contractility and ion handling and implicate impaired atrial function as an important contributor to the decline in ventricular function in hypertrophy and heart failure.