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Diastolic dysfunction and heart failure: Mechanism and experimental treatment

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In the past, we have focused on heart failure with a reduced ejection fraction (HFrEF). Recently, we have begun to focus on heart failure with a preserved ejection fraction (HFpEF), in which patients suffer from a diastolic dysfunction with a normal or near normal cardiac contraction. Patients with HFrEF typically have hypertension, diabetes, and various cardiomyopathies. They have a stiff ventricle that is non-compliant compared with patients with HFrEF. Diastolic dysfunction or diastolic heart failure is commonly observed in pediatric patients with hypertrophic or restrictive cardiomyopathy, primary hypertension and diabetes. We have generated a transgenic mouse line modeling human restrictive cardiomyopathy (RCM). Using this animal model, we have demonstrated that myofibril hypersensitivity to calcium is a key that causes impaired relaxation, i.e. diastolic dysfunction in mice with RCM. Using a genetic way or desensitizing chemical molecules to reduce the myofibril hypersensitivity can correct the diastolic dysfunction and rescue the RCM mice. Calcium desensitization provides us with a promising option in the treatment of diastolic dysfunction and diastolic heart failure.

Biography

Xupei Huang has completed his medical training from Nanjing Medical University and his PhD in Biochemistry from University of Paris XII and Post-doctoral studies in Molecular Cardiology from University of Wisconsin School of Medicine. He is currently Professor in Biomedical Science, Charles E. Schmidt College of Medicine at Florida Atlantic University in Florida, USA and a Fellow of American Heart Association (FAHA). He has published more than 85 papers in reputed journals and has been serving as an Associate Editor for *Cardiology* and an Editorial Board Member of repute.

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