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# About OMICS Group Conferences

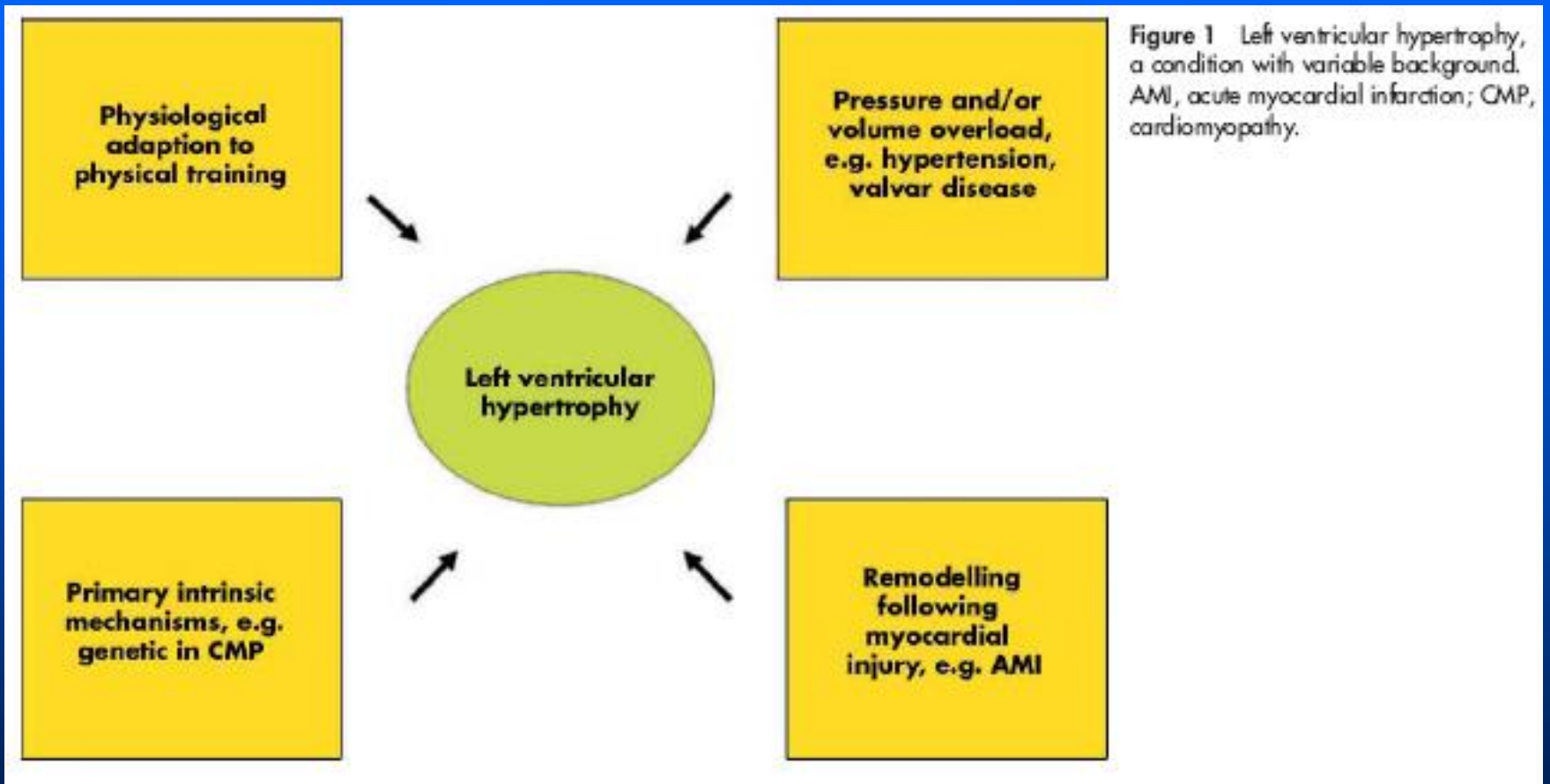
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**EARLY IMAGING BIOMARKER IN  
REMODELING DUE TO HEART  
FAILURE**

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**Fulbright Visiting Professor, Johns Hopkins**

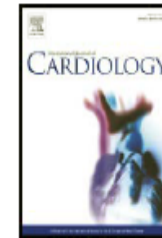




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## International Journal of Cardiology

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Letter to the Editor

### Stress-induced regional features of left ventricle is related to pathogenesis of clinical conditions with both acute and chronic stress

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#### ABSTRACT

Tako-tsubo cardiomyopathy is a relatively newly described acute and reversible left ventricular (LV) dysfunction triggered by emotional stress. The disease is associated with excessive sympathetic stimulation, microvascular dysfunction and abnormal myocardial tissue metabolism. Recently, we have pointed out that tako-tsubo cardiomyopathy may be associated with particular LV features which are also described by quantitative echocardiographic methods in hypertensive heart disease. The patients with acute or chronic stress can be presented clinically by stress-induced LV hypercontractility of LV base, relevant LV outflow tract obstruction and narrowed cavity. Recent observations also have confirmed the possibility of association of both acute and chronic conditions in a clinical presentation of the patients. Therefore, we believe that the presence of both resistance and hypercontractile response of LV base to stress induction compared with midapical region in clinical conditions with acute or chronic stress is important in the disease process.

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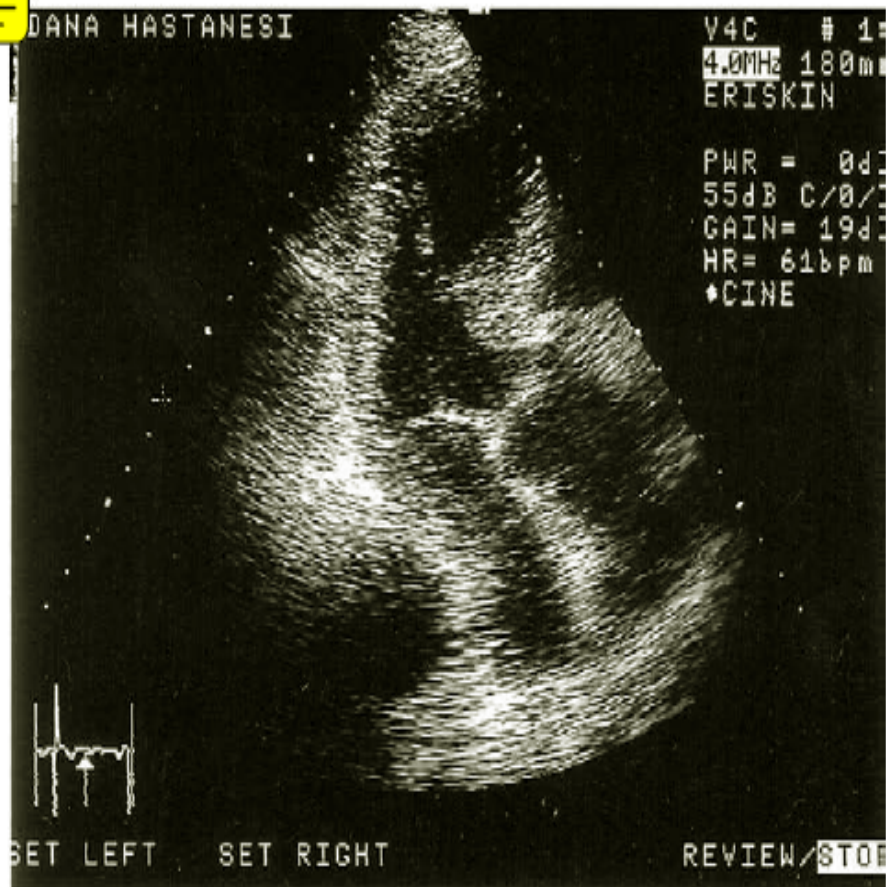


Fig. 1. A: Basal septal hypertrophy with all other normal regional myocardial thickness during diastole in a hypertensive patient. B: Basal LV systolic cavity obliteration by basal septal systolic bulging in the same patient.

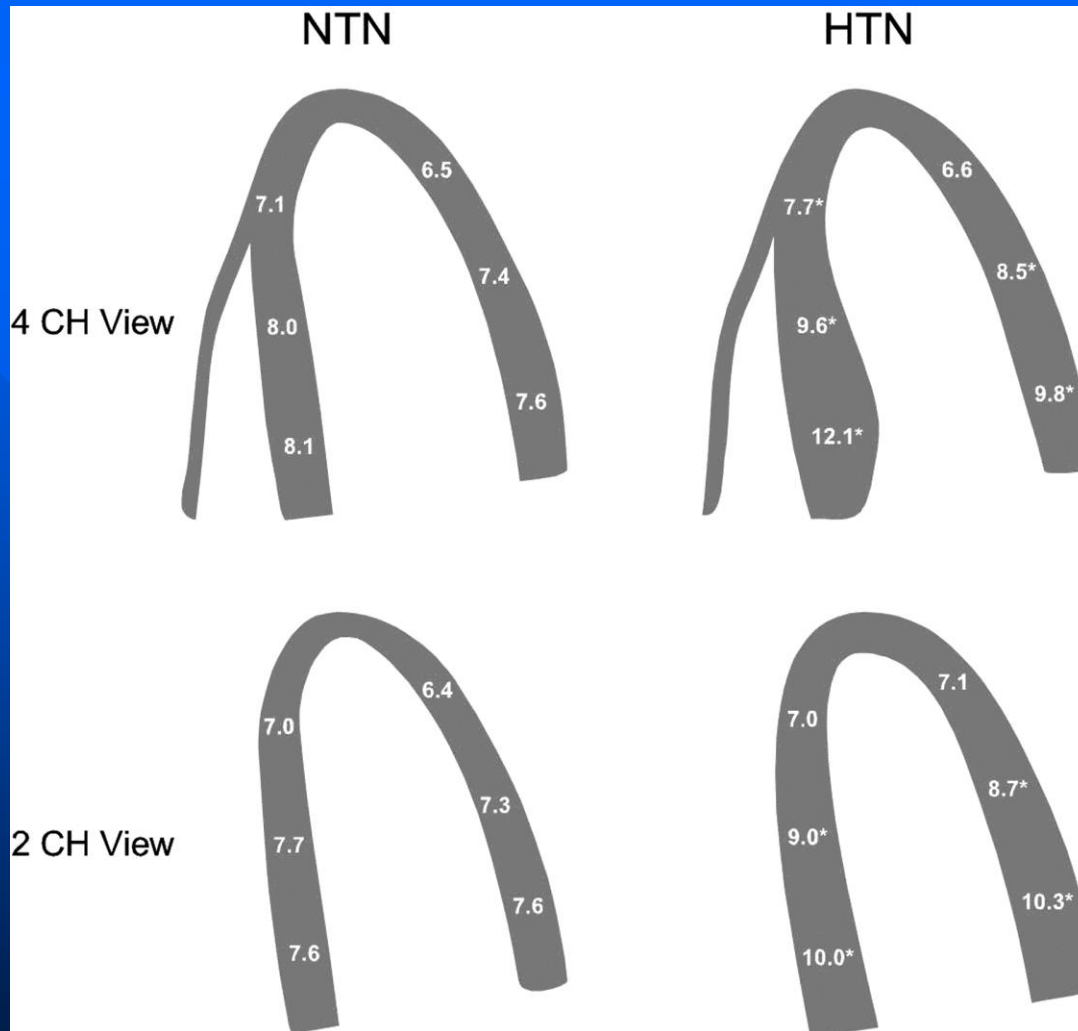
increased afterload. Therefore, these geometric and functional similarities on the basis of heart may represent a morphologic conjunction on LV myocardial geometry (stressed heart morphology) in clinical conditions with acute or chronic stress.

## References

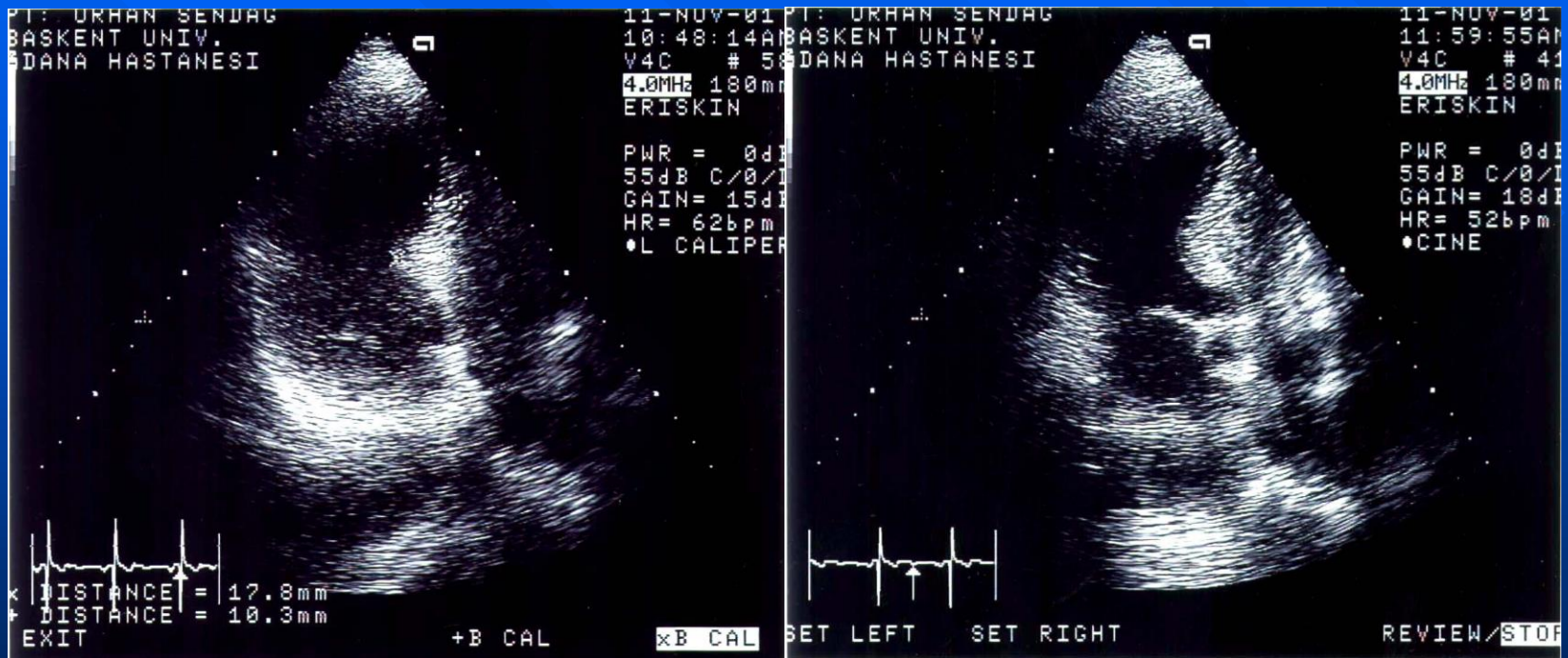
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- [4] Yalçın F, Shiota T, Odabashian J, et al. Comparison by real-time three-dimensional echocardiography of left ventricular geometry in hypertrophic cardiomyopathy versus secondary left ventricular hypertrophy. *Am J Cardiol* 2000;85:1035–8.

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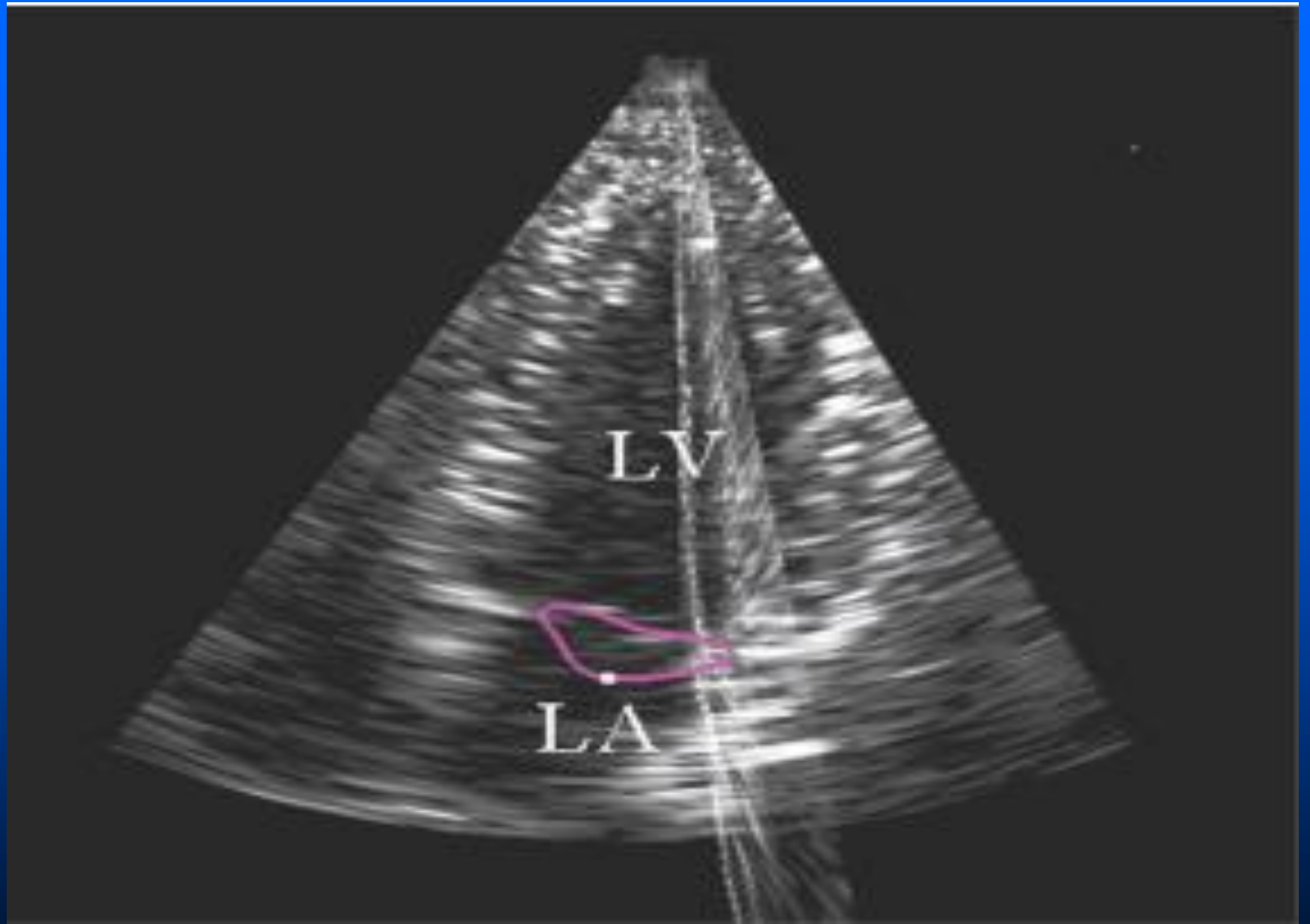
**Regional wall thickness in 4-Ch (upper panel) and 2-Ch (lower panel) views in HTN (right) and NTN (left) subjects.**



Baltabaeva A et al. Eur J Echocardiogr 2008;9:501-508

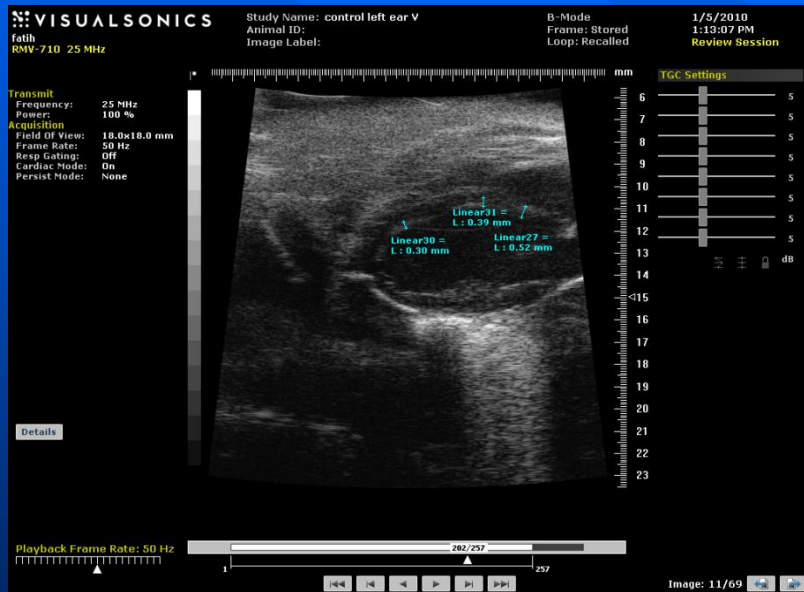






■ Even there was some cross-sectional observations, we documented in the first experimental prospective study using 3<sup>rd</sup> Generation Microscopic Ultrasonography System (Visualsonics) that exercise-induced stress is associated with regional LV myocardial remodeling and functional features.

(Circulation 2011)



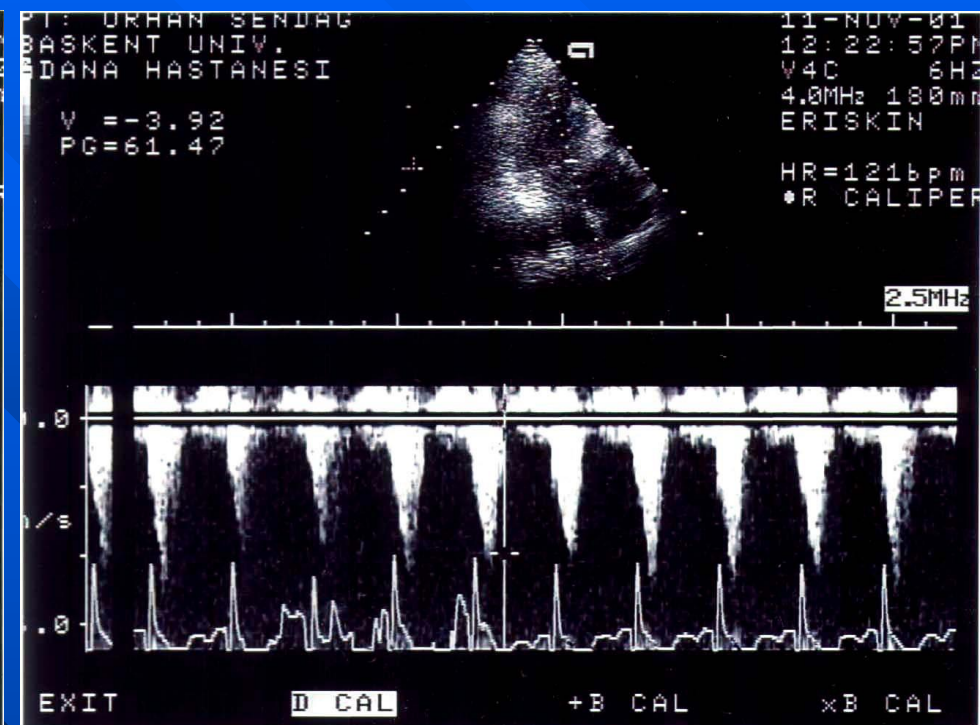
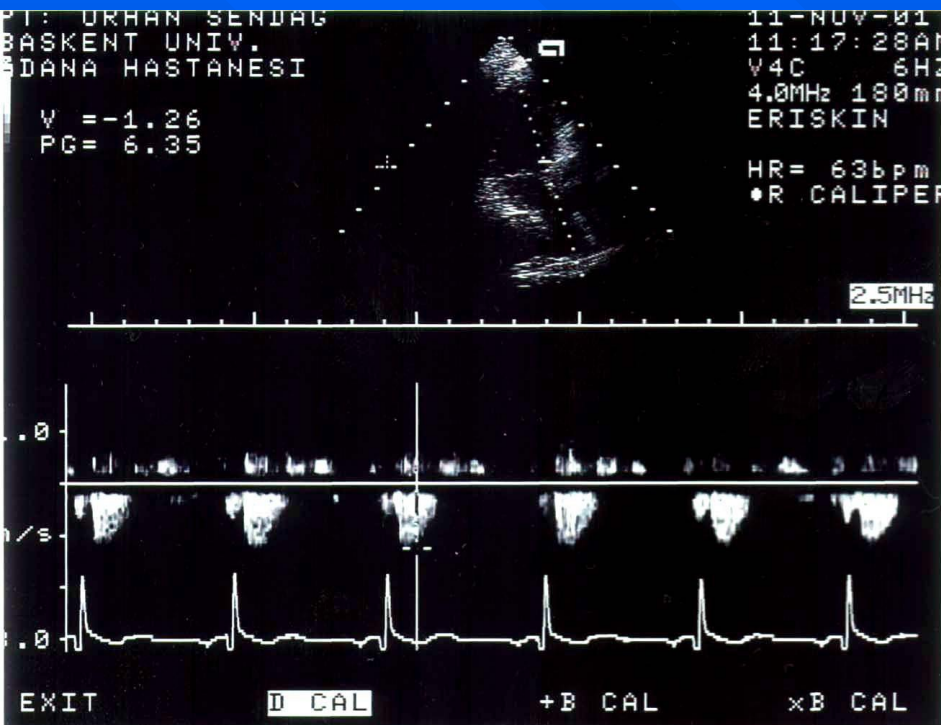
# End-systolic volumes (cm<sup>3</sup>)

## HOCM

## LVH

B	6.1±1.7	3.9±0.8*
MB	7±2.1	5.1±1.4*
M	4.8±1.7*	6.8±1.8
MA	6.8±2.1	5.6±1.7
A	2.1±0.5	2.6±0.8

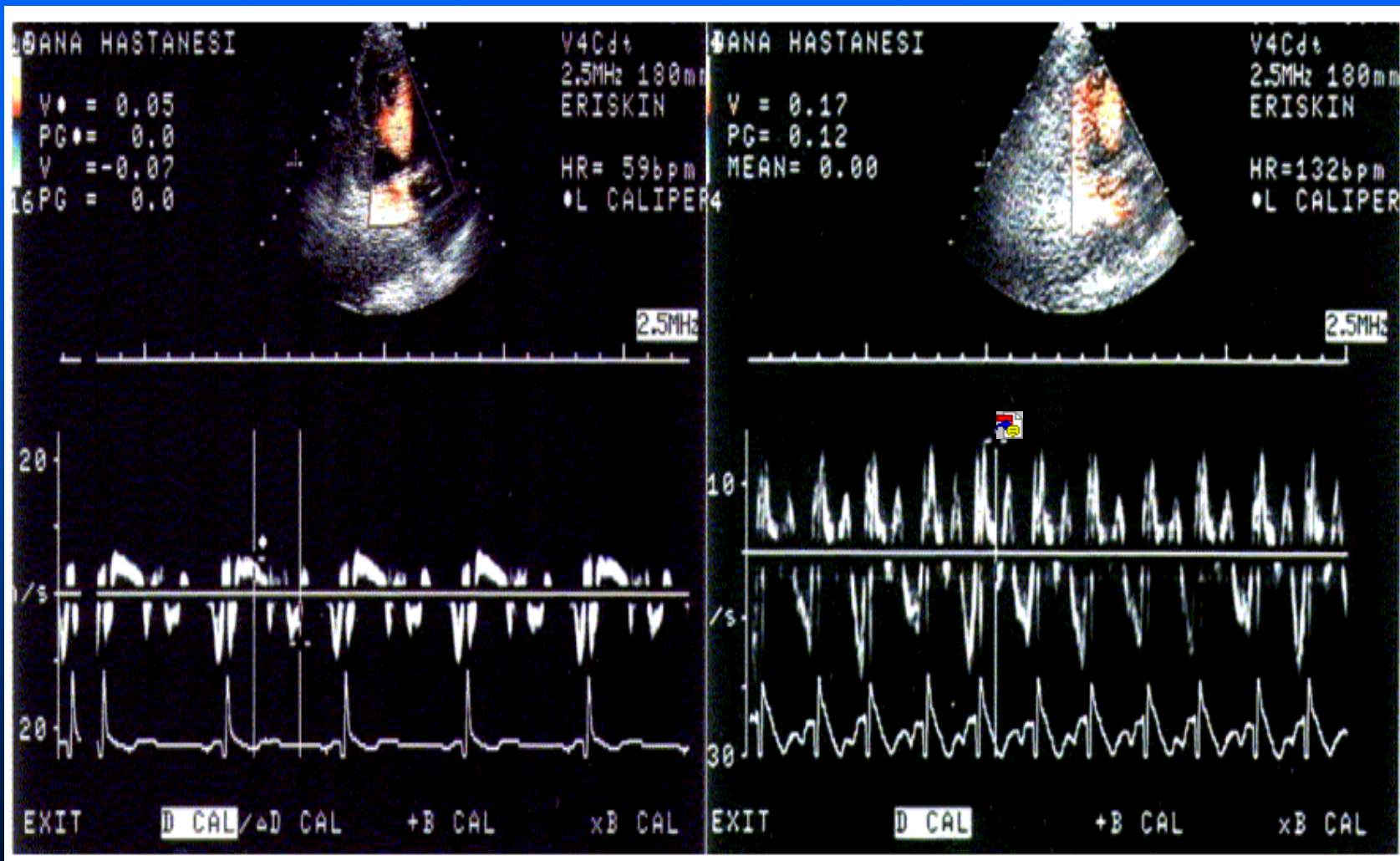
# Increased LVOT gradients in hypertensive patients under stress



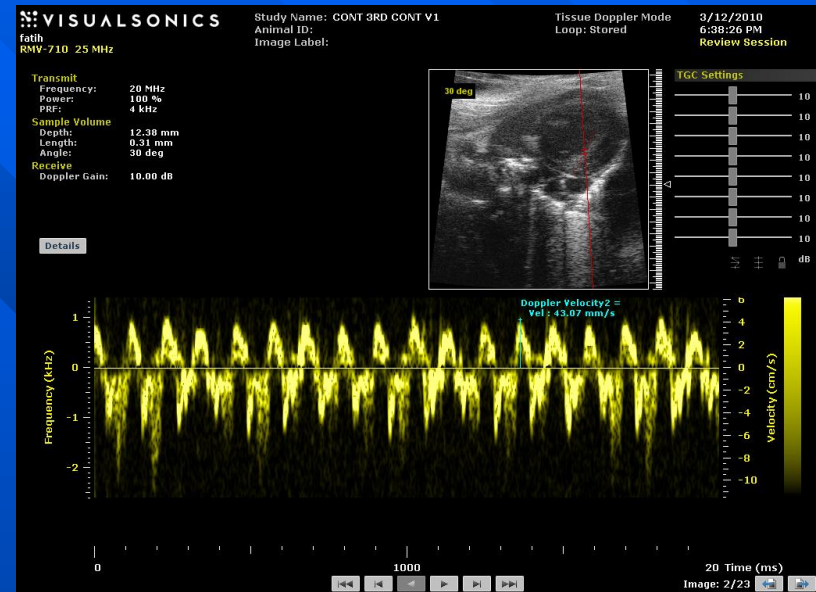
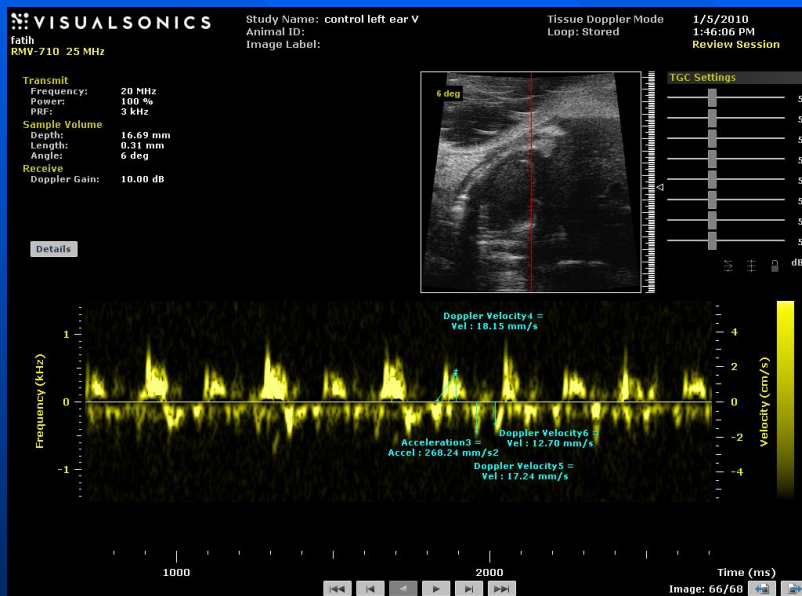
Yalçın F, Angiology 2004.



# Increased LV Contractility in hypertensives under stress



# Physical stress resulted in similar myocardial tissue response in mice to increased LV Contractility in hypertensives under stress



- Early recognition of diseases is the main priority for preventive medicine
- Determination of initial involvement of LV septal base as the Imaging biomarker will be helpful in earlier medical management
- This approach is cost-effective and provides to take the effective measures earlier and prevents the consequences of HF
- Early medical management keeps the disease in earlier stage and provides a great benefit in effective control of HF



**Thanks' for your kind attention!!!!!!**



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International

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