**NOVEL TISSUE DOPPLER PARAMETERS IN STAGING OF DIASTOLIC DYSFUNCTION**

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Background: Diastolic dysfunction (DD) encompasses abnormalities in ventricular relaxation, distensibility or filling. Currently, diastolic dysfunction is identified by echocardiography and characterized as 4 stages of increasing severity using tissue doppler parameters. This study addresses the use of novel tissue doppler parameters in differentiating stages of diastolic dysfunction.

Methods: Two hundred and eighty one echocardiograms were analyzed retrospectively. Statistical analysis of tissue Doppler parameters including a negative velocity during the early phase of diastole (Ea) and a positive systolic velocity of the movement of the annulus toward the cardiac apex during systole (Sa) were carried out. Linear regression to determine variation of Ea/Sa in the four stages of diastolic dysfunction was performed. Various other parameters such as Ea, Sa, Ea - Sa,

Ea + Sa, (log Ea/Sa), Ea/Sa, Ea/ (Ea+Sa), (Ea-Sa)/(Ea+Sa ) were also regressed on stage to ascertain any relationships of interest.

Results: Ea was decreased in diastolic dysfunction as compared to control subjects but is not useful in distinguishing stages of DD. Sa discriminates between control and diastolic dysfunction as well as between early and late stages (2 and 3/4) but does not differentiate between stages 1 and 2. The parameter Ea/Sa behaves very similar to Sa. EA-SA, EA/(EA+SA), (EA-SA)/(EA+SA) have the capacity to distinguish the different stages of diastolic dysfunction. (p<0.001).

Conclusions: New tissue Doppler parameters such as EA-SA, EA/(EA+SA) and

(EA-SA)/(EA+SA) may help objectively define stages of DD further.