tion of PCWP > 15 mm Hg. The cut-off of (E/Em)/log > 8 has 96.7% sensitivity, 90.9% specificity in prediction of PCWP > 15 mm Hg. We found significant correlation of PCWP with DE/Em (r = 0.894; p = 0.0001) and DE/Em/log (r = 0.829; p = 0.0001) in the subgroup of repeatedly examined patients in interval of 24 hours between two PCWP invasive estimation and echocardiographic prediction.

Conclusion: TP can predict invasively measured PCWP as a marker of LV filling pressure with a relatively high accuracy. TDE is able to provide a reliable assessment of PCWP hemodynamic monitoring under various clinical conditions at patient’s bedside. According to the complexity of acquired data echocardiography should be a routinely available examination at ICU.

DIASTOLIC FUNCTION

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Pseudonormal mitral filling is associated with similarly poor prognosis as restrictive filling in patients with heart failure and post AMI: a literature-based meta-analysis

H. Walsh1; R. Doughty1; J. Somarate1; G. Gamble1; G. Whalley1
1The University of Auckland, Medicine Dept., Auckland, New Zealand

Background: Diastolic mitral filling pattern (MFP) has been linked to prognosis in patients (pts) with chronic heart failure (CHF) and post-AMI. We recently showed in two literature-based meta-analyses (LMA) that the presence of RFP was associated with a 4-fold increase in the risk of death in both groups. This similar analysis evaluated the link between different MFPs and death.

Methods: We searched online databases for prospective studies of pts post-AMI and with CHF and comprehensive echocardiography. All cause death was then compared in the patient group with pseudonormal (PN) filling compared to restrictive filling pattern (RFP) and abnormal relaxation/normofilling (AR/N). Review Manager Version 4.2.7 software was used for the analysis.

Results: Five studies (4 CHF and 1 post-AMI) were identified and 545 pts (193 deaths) were included. PN filling confers a four-fold increased risk of death compared to AR/N (OR 4.08, 95% CI: 2.45, 6.77) but RFP has no significant additional prognostic power compared to PN (OR 1.32, 95% CI: 0.82, 2.18) but does have higher risk compared to other non-RFP AR/N (OR 5.92, 95% CI: 3.56, 9.85) (see table).

Conclusions: This LMA brings together results from 5 prospective studies and demonstrates the prognostic deficit associated with each advancing grade of diastolic filling abnormality, highlighting the poor prognosis associated with pseudonormal filling and further supporting the clinical utility of these measures.

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<th>Table 1</th>
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<td>Deaths/number at risk</td>
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<td>PN: 68/140</td>
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<td>RFP: 88/187</td>
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<td>RFP: 88/187</td>
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Effect of loading conditions on tissue Doppler-derived left ventricular diastolic indices, Ea, Aa, and Ea/Aa

N. T. Toh 1; H. Kanzaki 1; S. N. Nakatani 1; M. K. Kitakaze 1
1National Cardiovascular Center, Cardiovascular Dept., Suita, Japan

Background: Tissue Doppler mitral annular early diastolic velocity (Ea) is relatively independent to preload. The ratio of early diastolic transmitral flow velocity to tissue Doppler mitral annular early diastolic velocity (E/Ea) is an index of left ventricular (LV) diastolic filling pressure. However, little is known about the ratio of tissue Doppler mitral annular early to late diastolic velocity (Ea/Aa). Our aim was to assess the effect of loading conditions on Ea/Aa.

Methods: In 35 patients (aged 63±9 years, LVEF 58±11%) with uremia receiving regular hemodialysis (HD), echocardiographic studies were performed before and after HD. Early and late diastolic mitral inflow velocities (E, A) were measured with pulsed-Doppler echocardiography. Mitral annular early and late diastolic velocities were measured at the septal and lateral mitral annulus to calculate mean values respectively (Ea, Aa) with pulsed-tissue Doppler imaging. Mitral early and late diastolic velocities were measured with pulsed trans-mitral inflow (E/A) as an index of left ventricular (LV) diastolic filling pressure. Therefore being examined in the next 24 hours after HD. EA/AA was not significantly affected by loading conditions, although E/A and Aa were affected. Ea/Aa may be a load independent parameter.

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Load-independency of color M-mode flow propagation velocity and doppler tissue imaging in assessment of left ventricular diastolic function: comparison with transmirtal and pulmonary venous flow

M. F. Elnoamany1; H. Mahfouz1; H. Kabil2
1Shebin Elkom, Egypt; 2Cardiology Dept., Banha , Egypt

Background: Standard Doppler transmitral (TM) and pulmonary venous flow (PVF) velocity measurements are preload-dependent dependent. Pulsed-wave Doppler tissue imaging (PWDTI) and color M-mode flow propagation velocity (CMM FPV) are new Doppler methods for left ventricular (LV) diastolic function assessment. To date, few studies have compared the data obtained by these methods in the same series of patients and compared them to the current clinical reference method for assessment of LV diastolic function.

Objectives: To determine whether PWDTI&CMM FPV velocities are influenced by alterations in preload&afterload compared to (TM)&(PVF).

Methods: The study enrolled 130 patients with systolic dysfunction (Ejection fraction < 50%), age and sex matched healthy normal volunteers as a control group (I). Patients divided into two groups: Group (II) comprising 72 patients with E/A < 1 (early transmitral filling velocity/atrial contraction velocity) and Group (III) comprising 58 patients with E/A > 1. Patients underwent measurement of, E velocity, its deceleration time (DT), A velocity, isovolumic relaxation time (IRT), (PVF) velocities (S, D&AR), CMM FPV, early and late diastolic lateral mitral annular DTI velocities (Em and Am, respectively) at baseline, during Valsalva’s maneuver (VM) and at maximum isometric handgrip strength (MHS).

Results: In each of the three groups, no significant change existed between baseline, during VM and at MHS as regard CMM FPV and PVDTI velocities. In group (I), a significant decrease in E, A and increase in IVRT was noted during MHS; while during VM there was a significant decrease in E&A (p<0.05 for all) but E/A did not change significantly (p>0.05). In group (II) significant increase in E/A, S/D and decrease in IVRT&D was noted during MHS (p<0.05 for all); while during VM, TM&PVF Doppler indices did not change significantly(p>0.05). In group (III), a significant decrease in E/A and increase in AR was noted during MHS; while during VM a significant decrease in E, E/A&S/D and increase in AR was detected(p<0.05 for all).

Conclusion: In contrast to standard conventional (TM and PVF) Doppler indices, new diastolic indices (CMM FP velocities and DTI velocities) are not significantly affected by physiological pre and after load altering maneuvers. Therefore having a more clinical diagnostic utility as load-independent tools for assessment of LV diastolic function in patients with LV systolic dysfunction.

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Left ventricular function in early hypertension: are there reliable echocardiographic measures of diastolic function?

I. Almuntaser1; A. Brown1; P. Crean1; G. King1; A. Mahmud1; J. Feely1
1St James’s Hospital, Crest Directorate, Cardiology Dept., Dublin 8, Ireland

Background: Diastolic dysfunction identifies patients at risk of developing heart failure and may be common in hypertension. We compared the prevalence of diastolic dysfunction in early hypertension using criteria provided by the Canadian consensus, American Medical Association, and European guidelines.

Methods: 90 patients (62 men, 58 women; mean age 46.9±2.1 years), with newly diagnosed hypertension (>140/90 mm Hg clinic and >135/85 mm Hg day time ambulatory) underwent comprehensive echocardiography using a Philips Sonos 5500. Trans mitral valve inflow (Ea) was measured using PW Doppler with and without Valsalva maneuver, and tissue Doppler velocities (Ea/Aa) were measured and an average from four sites calculated. Analyses used JMPIN statistical software.

Results: The ejection fraction (Simpson’s rule) was normal in all patients. The prevalence of diastolic dysfunction varied according to the criteria used. There was a high prevalence 59% (n=71) using Canadian consensus guidelines (E/A < 1 with or without valsalva) of whom 27% (n=32) had a pseudo-normal pattern unmasked with valsalva and 32% (n=39) had impaired relaxation at rest. Significantly fewer 10% (n=12) patients were diagnosed using European guidelines (E/A < 1 < 0.5 years, <0.5 > 50 years), or American Medical Association guidelines 23% (n=27) (impaired relaxation pattern; E/A ≤ 0.75, and pseudonormal pattern; E/A ≤ 0.75 and E′ ≤ 10 despite the additional use of E′). Incclusion of the deceleration time or isovolumic relaxation time was not additive. Using tissue Doppler imaging (e′/a′ < 1) the