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Incorporating the New Echo Guidelines into Everyday Practice

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Disclosure Information

• I will not discuss off label use or investigational use in my presentation

• I have no financial relationships to disclose
What is the Diagnosis?
How to Evaluate Diastolic Function in This Particular Case?
Recommendations for the Evaluation of Left Ventricular Diastolic Function by Echocardiography: An Update from the American Society of Echocardiography and the European Association of Cardiovascular Imaging

Sherif F. Nagueh, Chair, MD, FASE, Otto A. Smiseth, Co-Chair, MD, PhD, Christopher P. Appleton, MD, Benjamin F. Byrd, III, MD, FASE, Hisham Dokainish, MD, FASE, Thor Edvardsen, MD, PhD, Frank A. Flachskampf, MD, PhD, FESC, Thierry C. Gillebert, MD, PhD, FESC, Allan L. Klein, MD, FASE, Patrizio Lancellotti, MD, PhD, FESC, Paolo Marino, MD, FESC, Jae K. Oh, MD, Bogdan Alexandru Popescu, MD, PhD, FESC, FASE, and Alan D. Waggoner, MHS, RDCS, Houston, Texas; Oslo, Norway; Phoenix, Arizona; Nashville, Tennessee; Hamilton, Ontario, Canada; Uppsala, Sweden; Ghent and Liège, Belgium; Cleveland, Ohio; Novara, Italy; Rochester, Minnesota; Bucharest, Romania; and St. Louis, Missouri

(J Am Soc Echocardiogr 2016;29:277-314.)
1. Variables recommended for evaluation of diastolic function in patients with HCM are average E/e0 ratio (>14), LA volume index (>34 mL/m2), pulmonary vein atrial reversal velocity (Ar-A duration ≥30 msec), and peak velocity of TR jet by CW Doppler (>2.8 m/sec). The parameters can be applied irrespective of the presence or absence of dynamic obstruction and MR, except for patients with more than moderate MR, in whom only Ar-A duration and peak velocity of TR jet are still valid.

Assessment of LV Diastolic Function and Filling Pressures in Patients With HCM

2. If more than half of the variables (total available variables three or four) meet the cutoff values, then LAP is elevated and grade II diastolic dysfunction is present. If <50% of the variables (total available variables three or four) meet the cutoff values, then LAP is normal and grade I diastolic dysfunction is present. In case of 50% discordance with two or four available variables, findings are inconclusive to estimate LAP. Estimation of LAP is not recommended if there is only parameter with a satisfactory signal.

3. Grade III diastolic dysfunction is present in the presence of a restrictive filling pattern and abnormally reduced mitral annular e0 velocity (septal <7 cm/sec, lateral <10 cm/sec)

How Does Morphology Impact on DD in HCM?

DD is independent from the morphological pattern

The main correlates of DD are:

• LV obstruction
• Age
• Degree of hypertrophy
• Degree of mitral regurgitation

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<th>GRS</th>
<th>GCS</th>
<th>Left Ventricular Twist</th>
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<td>n/↑</td>
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*Omar A. Circ Res. 2016;119:357-74*
Exercise Response in HCM
Blunted LV Deformational and Twisting Reserve With Altered Systolic-Diastolic Coupling

Soullier C. Circ Cardiovasc Imaging 2012;5:24-332
Prognostic Value of RV Diastolic Function Indices in HCM

Pagourelis E. Eur J Echocardiogr 2011;12:809-17
How to Evaluate Diastolic Function?
Two-dimensional and Doppler Methods For Assessment of LV Diastolic Function

Primary measures
- Peak E-wave velocity
- Peak A-wave velocity
- MV A duration
- MV E/A ratio
- MV DT
- Pulsed-wave TDI e’ velocity
- E/e’
- LA maximum volume index

Secondary measures
- PV S and D waves
- PV AR duration
- PV S/D ratio
- CW Doppler: TR systolic jet velocity
- Valsalva maneuver

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<table>
<thead>
<tr>
<th>Pulsed-wave TDI e’ velocity</th>
<th>septal e’</th>
<th>&lt;7 cm/sec</th>
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<tbody>
<tr>
<td></td>
<td>lateral e’</td>
<td>&lt;10 cm/sec</td>
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<tr>
<td>E/e’</td>
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<td>14</td>
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<tr>
<td>LA maximum volume index</td>
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<td>34 ml/m2</td>
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<tr>
<td>CW Doppler: TR systolic jet velocity</td>
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<td>2.5 m/s</td>
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Thank you