Checklist and practice points for TTE report

DATE OF PROCEDURE

Does this report reflect the patient's *current* status?

REASON FOR TEST

Stated: what clinical question was to have been answered?

Not stated: was the reason for TTE written on the requisition? Was it legible?

IMAGE QUALITY

Can vary from excellent to uninterpretable

In technically difficult studies, pathology "not seen" does not necessarily mean "not present"

What was the reason for technical difficulty?

RATE AND RHYTHM

Was rhythm interpretable?

Was atrial fibrillation or atrial flutter identified?

Might atrial fibrillation, bradycardia, or tachycardia have interfered with assessment of left ventricular diastolic function?

CHAMBER SIZES

Is there evidence of dilation?

Transverse diameter understates true volume of an enlarged left atrium

HYPERTROPHY

Wall thicknesses indicate concentric left ventricular hypertrophy or ASH

Left ventricular mass index: were height and weight measured, or just estimated?

In ASH, comment on presence or absence of dynamic outflow tract obstruction (systolic anterior motion of the anterior mitral valve leaflet) is required

"Sigmoid septum" (or "septal bulge") is common in the elderly. This does not have the same clinical implications that ASH has in younger patients

RIGHT VENTRICULAR FUNCTION

No comment? Was function assumed to be normal or was right ventricle adequately viewed?

Was this a subjective assessment or was it quantified?

Right ventricular systolic pressure estimate can be increased by hypertension and obesity, not just pulmonary hypertension

LEFT VENTRICULAR SYSTOLIC FUNCTION

Graded 1 (normal) through 4 (severely abnormal)

- Grade 2 can be "normal" in atrial fibrillation
- Grade 1 can be abnormal in mitral regurgitation

Left ventricular ejection fraction is a poor indicator of left

LEFT VENTRICULAR DIASTOLIC FUNCTION

Graded normal, or class 1-4 diastolic dysfunction

The term "mild diastolic dysfunction" is misleading

VALVES

Morphology

- Cannot always be identified in technically difficult scans
- Bicuspid AV is a common congenital variant

Regurgitation

- Typical semiqualitative assessment is often misleading
- Quantitative assessment is more accurate than qualitative assessment

Stenosis

- A jet from mitral regurgitation can interfere with estimating the area of the AV orifice.
- When mitral regurgitation is present, the AV orifice appears small, but when peak gradient and peak velocity across the AV are normal, aortic stenosis is unlikely

MASS OR THROMBUS

Ability to detect lesions is only as good as the images obtained

Left atrial appendage is not visible via TTE

ATRIAL OR VENTRICULAR SEPTAL DEFECT

If an atrial or ventricular septal defect is strongly suspected clinically, but not visible, consider echocardiography with "bubble" contrast

PERICARDIUM

Thickened or calcified? Thin patients can have a highly echogenic, normal pericardium that appears to be calcified

Uncomplicated pericarditis cannot be detected by TTE

Small effusions are often physiologic, of no clinical importance

Tamponade is a *clinical* diagnosis, though TTE might suggest it

INCIDENTAL FINDINGS

Unsuspected congenital cardiac abnormalities

Aortic dilation or aneurysm* (When suspected, computed tomography of the thorax and abdomen and abdominal ultrasonography are imaging modalities of choice, not TTE.)

Pleural effusion*

LEFT VENTRICULAR SYSTOLIC FUNCTION

Graded 1 (normal) through 4 (severely abnormal)

- Grade 2 can be "normal" in atrial fibrillation
- Grade 1 can be abnormal in mitral regurgitation

Left ventricular ejection fraction is a poor indicator of left ventricular function

- What method was used to calculate left ventricular ejection fraction?
- Teicholz's equation can be grossly inaccurate with regional wall-motion abnormalities; the "disc method" using Simpson's rule is preferred

Other parameters of left ventricular function

Wall motion

- Global abnormalities suggest cardiomyopathy
- Regional abnormalities suggest infarction

Unsuspected congenital cardiac abnormalities

Aortic dilation or aneurysm* (When suspected, computed tomography of the thorax and abdomen and abdominal ultrasonography are imaging modalities of choice, not TTE.)

Pleural effusion*

Hepatic masses*

Extracardiac mass compressing the heart

CONCLUSIONS

Important cardiac findings

Suggestions for follow-up or other investigations

Treatment advice might be offered, but clinical decisions are made by physicians who have knowledge of their patients

ASH—asymmetric septal hypertrophy, AV—aortic valve, TTE—transthoracic echocardiography.

*Could be present, even if not visible via TTE