Bedside self-assessment checklist

Chapter 8. Fluid Responsiveness and Fluid Tolerance

Patient / study: _____ Date: _____ Operator: _____

	Item	Standard to meet	Source
Indication			
☐	**I stated the clinical question before scanning: is this patient preload responsive, congested, or both**	Question named in the note; study labeled FoCUS or advanced CCE	14, 90
☐	**I confirmed acute circulatory failure is present before testing responsiveness**	Hypotension, low cardiac output or tissue hypoperfusion documented; no test in a stable patient	1, 2
☐	**I checked whether the answer is already obvious and testing would only delay treatment**	Hemorrhage, overt hypovolemia or first-phase septic shock before any volume: give fluid, do not test	1, 2
☐	**I recorded ventilation mode, tidal volume, PEEP, spontaneous effort, rhythm and intra-abdominal pressure concerns before choosing an index**	Documented, because these determine which index is valid	1, 2
☐	**I checked contraindications to the test selected**	No PLR in intracranial hypertension; no occlusion test in a non-intubated patient or one who breaks the hold	1, 2
☐	**I asked the tolerance question separately from the responsiveness question**	Congestion, oxygenation and organ risk weighed before any bolus is given	17, 24
☐	**I asked whether the right ventricle is the cause of the congestion**	Right ventricular size, function and afterload assessed; pericardial constraint excluded	19, 84
☐	**I checked whether this patient falls in a category in which one of the venous signals is uninterpretable**	Cirrhosis or steatosis for the portal vein, parenchymal renal disease for the intrarenal veins, severe tricuspid regurgitation for the hepatic vein, raised intra-abdominal pressure for the IVC, atrial fibrillation for phase assignment	17, 19
☐	**I declared an abdominal venous study under the ASE nomenclature as a cardiac examination with an examination of another system, and archived it so the noncardiac elements are identified**	Named as cardiac POCUS with abdominal venous Doppler, not as a cardiac study	20
Acquisition			
Image set to store (views as in Tables 3.1 and 3.3) ***T1, basic study: 2 clips*** ☐ Subcostal IVC: long axis over a respiratory cycle, then short axis **(2 clips)** ***T2, advanced study adds: 6 stills*** ☐ A5C PW Doppler in LVOT, traced VTI: baseline, during passive leg raising, after return **(3 stills)** ☐ Hepatic vein PW Doppler with ECG **(1 still)** ☐ Portal vein PW Doppler, peak and trough on screen **(1 still)** ☐ Intrarenal venous Doppler, at least two cycles **(1 still)**		
☐	**I obtained an LVOT pulsed-wave signal with the closing click visible, low wall filter and gain set to the modal envelope**	5 to 7 mm gate in the LVOT; outer edge of modal velocity traced	32
☐	**I averaged an adequate number of beats**	Three in sinus rhythm, five in atrial fibrillation within one examination; five to seven consecutive beats when arrhythmia is present during PLR	32, 33
☐	**I kept the probe on the chest and the sample volume in the same LVOT position throughout the maneuver**	No re-acquisition of the window between baseline and test	2
☐	**I performed PLR by moving the bed from semi-recumbent to trunk horizontal with legs at 30 to 45 degrees**	Trunk-to-leg angle unchanged; legs not lifted by hand; secretions suctioned and awake patient informed first	28, 32
☐	**I measured the PLR effect within about one minute and again after returning the patient to semi-recumbent**	Three paired VTI values recorded: baseline, PLR, return	28, 32

	Item	Standard to meet	Source
☐	**I imaged the IVC in a subcostal long axis, perpendicular to its long axis, at the site the book measures to**	The house measurement of section 6.4, which is 0.5 to 3.0 cm proximal to the RA ostium read at end-expiration; the 1.0 to 2.0 cm from the junction quoted from the 2015 guideline falls inside it; away from the hepatic vein confluence and diaphragm	12, 13, 32
☐	**I confirmed on 2D that apparent IVC collapse is narrowing and not translation out of plane**	Pseudocollapse excluded before any number is reported	13, 14
☐	**Where the transthoracic answer was equivocal in a ventilated patient, I considered TEE for SVC collapsibility**	SVC measurable in 99.6% of ventilated patients versus 78.1% for IVC	9
☐	**I acquired the hepatic vein trace to the standard of section 6.4, with a simultaneous electrocardiogram running so the phases could be assigned**	Subcostal, 3 to 4 mm sample volume, gate 1 to 2 cm from the IVC junction, at least five consecutive beats spanning one respiratory cycle when ventilated; ECG channel present on the archived image, since reader agreement is higher with it	13, 55
☐	**I set the portal velocity scale and the angle so that both peak and trough velocities were on screen and measurable**	Cardiac preset scale reduced from a default near 100 cm/s to about 40 cm/s; sweep 50 or 66.7 mm/s; no aliasing and no falsely absent flow	19
☐	**I obtained an intrarenal trace with arterial flow above and venous flow below the baseline for at least two cycles, and rejected an ambiguous study instead of interpreting it**	Abdominal or trauma preset, Nyquist limit below 20 cm/s, color gain increased; inadequate trace recorded as uninterpretable	17, 19
☐	**For a venous congestion study I measured the IVC at the site the convention specifies, and said which convention I used**	Congestion studies: intra-hepatic portion, 2 cm from the hepatic vein junction, maximal diameter across the respiratory cycle. Right atrial pressure: end-expiration, 0.5 to 3.0 cm proximal to the right atrial ostium, the house measurement of section 6.4	13, 16
Interpretation			
☐	**I applied the threshold belonging to the measurement I actually made**	PLR: cardiac output rise 10 ± 2%, or LVOT VTI rise >12.5%; never a pulse pressure threshold applied to VTI	11, 14
☐	**I compared the observed change with the least significant change of my own measurement**	LVOT VTI LSC 11% same operator, 14% between operators; ASE calls >6% meaningful	14, 33
☐	**I did not report an IVC index as a fluid-responsiveness test with spontaneous effort, low tidal volume, low compliance, intra-abdominal hypertension or right ventricular failure**	Index withheld or explicitly flagged as uninterpretable	2, 32
☐	**I did not estimate RAP from IVC collapse on positive-pressure ventilation**	Reported collapse as uninterpretable; used IVC ≤2.1 cm to identify RAP below 10 mm Hg (12 mm in the 2010 guideline and the study that both guidelines cite; section 6.4), hepatic vein velocities over at least five beats, or a transduced invasive pressure	12, 13
☐	**I confirmed return to baseline before calling a PLR positive**	Cardiac output returned to the pre-test value in the semi-recumbent position	28
☐	**I computed the portal pulsatility fraction from measured velocities**	(Vmax - Vmin)/Vmax; below 30% normal, 30% to 50% a transmitted pulse, 50% or more marked	19
☐	**I named the false positive and the false negative for each venous bed before accepting it**	Portal: lean or athletic subjects and arteriovenous connections as false positives, cirrhosis or steatosis as false negative. Hepatic: severe tricuspid regurgitation and atrial fibrillation as false positives, preserved right atrial compliance as false negative	16, 17, 19
☐	**I read the venous beds as pressure transmitted into the organs, in context, and did not read a plethoric IVC as congestion on its own**	Dilatation alone has 41% specificity for congestive acute kidney injury and can be normal in athletes, young adults and pregnancy; marked findings in at least two beds are 96% specific and 27% sensitive for subsequent injury after cardiac surgery	16
Medical decision-making			

	Item	Standard to meet	Source
☐	**I gave fluid only when circulatory failure, preload responsiveness and acceptable overload risk coexisted**	All three documented; otherwise fluid withheld	24, 28
☐	**When the test was negative I named the alternative intervention**	Vasopressor, inotrope, PEEP reduction or decongestion chosen instead of a bolus	2, 28
☐	**I verified the effect of any bolus given, without assuming it worked**	Post-bolus stroke distance and perfusion markers (mottling, capillary refill time, lactate, venous oxygen saturation) rechecked	2, 22
☐	**I repeated the test before the next fluid decision, without relying on an earlier result**	In FRESH only 42.2% were responsive on the first test but 81.9% at some point over 72 hours	23
☐	**I assessed preload responsiveness before starting fluid removal or ultrafiltration**	Absence of responsiveness supports safe removal; a PLR before removal predicts intradialytic hypotension	1, 2
☐	**I documented the index used, its threshold, the measurement technique and the ventilatory and rhythm conditions at the time**	Report allows the next operator to repeat the identical measurement; quantitative monitoring requires level II training, level III for Doppler hemodynamics	14
☐	**I said what the venous finding changes, or that it changes nothing, and recorded the standing of the evidence behind it**	One of stop point, decongestion target, or nothing, written in the note, with the association to organ injury described as observational, strongest after cardiac surgery, and with no randomized trial of an ICU strategy guided by these signals	17, 76, 77
☐	**I did not treat a venous finding as an indication for fluid removal in the absence of a clinical decongestion target**	No diuresis or ultrafiltration ordered on a venous finding alone; caution documented where cardiac output may depend on high preload	19
☐	**I named the waveform that must change, and by how much, before the next assessment counts as different**	Target stated; no published least significant change exists for the hepatic venous systolic filling fraction or the portal pulsatility fraction, and a change greater than 10% is the rule quoted for the IVC collapsibility index	14
☐	**I reported the estimated right atrial pressure and, where warranted, the hepatic vein waveform**	Right atrial pressure reported, even as "unable to assess"; hepatic vein waveform reported for volume status among other indications	21

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