Volume status and fluid responsiveness

PREDICTING FLUID RESPONSIVENESS

Point-of-care echocardiography can be used to predict whether a patient will increase cardiac output in response to intravenous (IV) fluid administration.
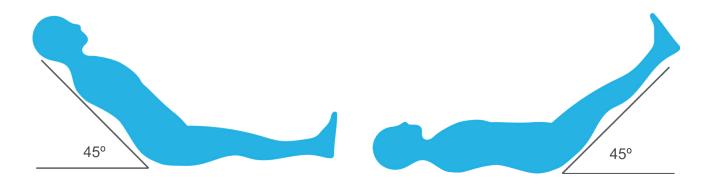
A passive leg raise (PLR) allows a reversible autobolus that mobilizes volume from the legs and increases preload (~300 mL).

Stroke volume

Fluid responsiveness can be predicted by measuring stroke volume before and after a PLR.

By treating the left ventricular outflow tract diameter as fixed, the calculation can be simplified to a comparison of velocity-time integral (VTI) before and after PLR.

Perform a passive leg raise by taking a reclining patient to a supine position, and elevating their legs for 30 seconds.

A change in VTI of more than 15% after PLR predicts that a patient will be fluid responsive.

Aortic blood flow velocity

Respiratory variation of more than 12%, measured with pulse wave Doppler in an apical five-chamber view, also indicates that a patient is likely to be fluid responsive.