Deterioration of Left Ventricular Chamber Performance After Bed Rest

To the Editor:

Perhonen et al estimate changes in the left ventricular (LV) diastolic rest volume before and after bed rest. By definition, diastolic rest volume is that volume which exists at zero transmural LV diastolic pressure (LVD\(\text{P}_{\text{tm}}\)). Although they acknowledge the potential role of pericardial constraint in their discussion, they ignore this effect by assuming LVD\(\text{P}_{\text{tm}}\) is approximately equal to pulmonary capillary wedge pressure (PCWP) in their analysis. When intracardiac and extracardiac diastolic pressures are both carefully measured, the resulting curves relating LVD\(\text{P}_{\text{tm}}\) to LV volume have a relatively flat portion near zero pressure.\(^2\) The diastolic pressure-volume curves presented by Perhonen et al do not show this characteristic, suggesting an error in their assumption that pericardial constraint pressure is negligible. This methodological concern raises doubts about the main findings of their study.

Right atrial pressure (RAP) may be used to approximate LVD\(\text{P}_{\text{tm}}\) as PCWP–RAP.\(^3\) Although this method remains controversial,\(^4\) if simultaneous RAP data are available to the authors, it would be worthwhile to repeat their analysis using this approximation.

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