***Cite this as*:** Wolfgang HUBER, Uli MAYR, Andreas UMGELTER, Michael FRANZEN, Wolfgang REINDL, Roland M. SCHMID, Florian ECKEl, 2018. Mandatory criteria for the application of variability-based parameters of fluid responsiveness: a prospective study in different groups of ICU patients. *Journal of Zhejiang University-Science B (Biomedicine & Biotechnology)*, 19(7):515-524. https://doi.org/10.1631/jzus.B1700243

Mandatory criteria for the application of variability-based parameters of fluid responsiveness: a prospective study in different groups of ICU patients

Key words: Hemodynamic monitoring, Preload, Fluid responsiveness, Stroke volume variation, Pulse pressure variation, Applicability

Research Summary

- Variations of the arterial pressure such as stroke volume variation (SVV) have high sensitivity and specificity in predicting fluid responsiveness.
- Sinus rhythm (SR) and controlled mechanical ventilation (CV) are mandatory for the applicability of SVV.
- The applicability of SVV in ICU-patients might be different over time and within certain subgroups of patients.
- We analysed the prevalence of SR and CV in ICU patients during PiCCO-monitoring.
- Subgroups of patients with sepsis, cirrhosis and acute pancreatitis were analysed.

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Research Summary

- Applicability of SVV in a predominantly medical ICU is only about 25-35%.

- Prevalence of both SR and CV was higher during the first 24 hours compared to measurements thereafter (36.1% vs. 21.9%; $p<0.001$).

- Applicability ranged between 0% in acute pancreatitis, 25.5% in liver failure and 48.9% in patients without pancreatitis, liver failure, pneumonia or sepsis.

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Figure 2: Distribution of sinus rhythm (SR), controlled ventilation (CV) and their combination during the first three measurements within the first 24 hours since baseline in subgroups of patients with different diagnoses.

