

indicated; the decision must be individualised according to the presence of atrial fibrillation recurrence, comorbidities, bleeding risk, and the patient's overall condition.

The risk of thromboembolic events is lower in patients with normal left ventricular systolic function (1.5%), whilst in patients with global left ventricular systolic dysfunction it increases to 12.6%. If an additional risk factor, such as left atrial dilatation with LA ESD > 25 mm/m², is present, the risk may further increase up to 20% [39]. Moderate to severe mitral regurgitation may reduce the risk of thrombus formation in the left atrial appendage due to increased "wash-out" [40, 41].

Limitations of evidence and research gaps

Randomised trials in the intensive care setting are scarce, and studies that guide treatment using predefined echocardiographic stratification of phenotypes are almost entirely absent; most evidence is derived from observational cohorts or from RCTs outside septic shock on non-ICU patients, which limits the generalisability of conclusions to the broader critically ill population. Comparability is further hampered by the heterogeneity in NOAF definitions, differing monitoring methods (intermittent ECG vs. continuous recording), and inconsistent thresholds for left atrial parameters (e.g., LAVi, LAEF, AVTI).

Echocardiographic indicators are highly dependent on preload, afterload, heart rate, and rhythm, and in unstable patients they fluctuate

rapidly; examination should therefore be repeated with every clinically significant haemodynamic change, parameters should be averaged over multiple cycles, and findings must always be interpreted in the clinical context. Future research should target multicentre RCTs with protocolised POCUS/TTE (including core-lab evaluation), standardised cut-off values for left atrial parameters, and predefined clinical end-points (rate/rhythm control, haemodynamics, AF recurrence, bleeding, mortality). Analysis of long-term follow-up outcomes and quality of life after intensive care discharge warrants further investigation.

Conclusion

Bedside echocardiography focused on left atrial parameters, interpreted in the context of diastolic and systolic function, provides rapidly accessible and clinically relevant data for guiding NOAF therapy in patients with septic shock. Left atrial dimensional and functional indicators, particularly LAVi and parameters assessed post-cardioversion (e.g., LAEF, AVTI), can help to estimate sinus rhythm maintenance and recurrence risk, thereby individualising the decision between rhythm control and rate control. Simple, standardised POCUS/TTE protocols can facilitate decision-making and potentially improve both short-term and long-term outcomes in critically ill patients; however, their benefit requires further prospective validation in the intensive care setting.

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