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Letter to the editor

**Applications of echocardiography in the critically ill diabetic patient:
useful variables and their clinical impact**

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Dear editor:

Given that echocardiography has become an indispensable tool for advanced hemodynamic monitoring and in the comprehensive management of critically ill patients, applied in the most diverse contexts of serious illness, (1) the authors of this letter have set out to reflect on the subject in order to achieve greater dissemination in the scientific community in order to perfect its use by specialists in the field.

Echocardiography aims to integrate real-time functional assessment of various components of the circulatory system with clinical data and other complementary examinations. This allows for personalized volume management. However, its application and interpretation require a trained professional with the appropriate experience. In the case of critically ill diabetic patients, its application presents particular nuances that warrant careful consideration.



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Therapeutic decisions in a hemodynamically compromised patient can be compromised if appropriate imaging tools are not used. From this perspective, echocardiography not only allows for the assessment of cardiac chamber function and volumes but also identifies specific problems such as diastolic dysfunction, diabetic heart disease, and left ventricular hypertrophy (LVH). (2) The latter, present from early stages and closely related to hypertension and chronic kidney disease, has a detrimental effect by increasing myocardial stiffness and filling pressures, which can lead to hemodynamic instability. (3,4)

Of particular importance is the evaluation of patients with preserved systolic function, in whom a normal ejection fraction can mask significant alterations in ventricular relaxation and filling. In these cases, the use of parameters such as tissue Doppler ultrasound, the E/e' ratio, left atrial volume, and myocardial strain allows for a more precise assessment of diastolic function and hemodynamic status. (5)

Some studies have shown that hyperglycemia in critically ill patients is associated with increased morbidity and mortality. Adequate glycemic control can contribute to a better clinical outcome; however, when diabetic patients also have cardiovascular involvement, the treatment becomes more complex. Integrating echocardiographic findings with glycemic data and other metabolic factors is essential for achieving personalized and higher-quality care. (4,5)

The authors of this letter believe that the MULTIMED journal can contribute to generalizing this problem by publishing works that integrate echocardiography and metabolic control in critically ill diabetic patients to promote a multidisciplinary approach that includes intensivists, cardiologists and endocrinologists.

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Conflicts of interest

The authors declare that there are no conflicts of interest.

Authorship contribution

Raúl Leyva Castro andYenisleidy Rivero Ferrer:conceptualization, resources, research, drafting, validation, correction and editing.

