Residência RP Pediátrica
Publicação Oficial da Sociedade Brasileira de Pediatria
ISSN-Online: 2236-6814

Submitted on: 10/09/2024
Approved on: 10/17/2024

RESENHA

Article Summary : Is rapid bedside echocardiography in septic shock possible?

Raianne Souza Silva[1], Michele Alves Medeiros[1], Vanessa Soares Lanziotti[1,2]

This editorial (1) published in the journal Pediatric Critical Care Medicine addresses the applicability of bedside echocardiography (cardiac POCUS = point-of-care cardiac ultrasonography) in pediatric patients with septic shock. The rapid use of echocardiography in patients with poor tissue perfusion can guide a more accurate assessment of the use of fluids and vasoactive amines in these patients. The author has four questions:

1) Why guess when you can see?

The use of echocardiography or ultrasound at the bedside can provide us with visual information about the heart, lungs and inferior vena cava in a rapid, non-invasive and effective manner. Its use in the first 72 hours of hospital admission can identify treatable pathologies such as cardiac tamponade, as well as guide the treatment of shock dynamically, especially in patients who do not respond to high doses of vasoactive amines. As it is a low-cost and non-invasive diagnostic method, it can be especially relevant in low- and middle-income countries - for this reason, it is essential to train qualified personnel and regulate its use.

2) Does relying solely on images run the risk of overtreatment? It is essential that diagnostic methods be used in conjunction with clinical assessment of the patient and continuous hemodynamic monitoring methods (Figure 1).

3) Should we think of hemodynamic support therapies as having interconnected actions?

For the full use of echocardiography at the bedside, we need two elements:

- acquisition of good images and adequate interpretation, correlated with cardiovascular physiology;
- resources of people and equipment that allow integrated, early and serial hemodynamic assessments;

The three main hemodynamic targets and their therapies may be closely linked to the evolutionary pathophysiology of shock:

- Patient with hypovolemia x need for fluid;
- Patient with vasoplegia x use of vasopressor drugs;
- Patient with cardiac dysfunction x need for inotropic drugs.

[1] Instituto de Puericultura e Pediatria Martagão Gesteira (IPPMG)- Universidade Federal do Rio de Janeiro (UFRJ), Unidade de Terapia Intensiva Pediátrica - Rio de Janeiro – RJ - Brazil.
[2] Instituto de Puericultura e Pediatria Martagão Gesteira (IPPMG)- Universidade Federal do Rio de Janeiro (UFRJ), Unidade de Pesquisa Clínica - Rio de Janeiro – RJ - Brazil.

Correspondence to:
Vanessa Soares Lanziotti.
Instituto de Puericultura e Pediatria Martagão Gesteira (IPPMG). R. Bruno Lobo, 50 - Cidade Universitária, Rio de Janeiro - RJ, 21941-912
E-mail: vslanziotti@gmail.com

Resid Pediatr. 2025;15(1). DOI: 10.25060/residpediatr-2025.v15n1-1354

Este trabalho está licenciado sob uma Creative Commons Attribution 4.0 International License.



Figure 1. Diagnostic methods used in conjunction with clinical evaluation of the patient and continuous hemodynamic monitoring methods.

It is important to remember that cardiac function is dependent on three pillars: preload, afterload and cardiac contractility, and these three elements must be assessed together. Bedside echocardiography with clinical assessment helps to individualize treatment, especially in patients with refractory shock.

4) Is it important to know the type of septic cardiac dysfunction?

Sepsis is a heterogeneous syndrome and organ dysfunction, including cardiovascular dysfunction, can be different in each patient. Systolic dysfunction in septic patients is the most common, but other types of dysfunction can occur, such as diastolic dysfunction, right ventricular dysfunction and hyperdynamic left ventricular dysfunction, which may be associated with worse prognoses and require different treatments.

In conclusion, the use of bedside echocardiography can more accurately guide the hemodynamic management of patients with septic shock, and more prospective studies are needed to validate this management and improve the clinical outcomes of these patients.

REFERENCE

1. Ranjit S. Is Rapid Bedside Echocardiography in Septic Shock Possible? Pediatr Crit Care Med. Aug 2024; 25(8):758-761. DOI: 10.1097/pcc.0000000000003538