Septic cardiomyopathy

Lana Maričić[1,2]*

[1]University Hospital Centre Osijek, Osijek, Croatia
[2]Faculty of Medicine Osijek, University J.J. Strossmayer Osijek, Osijek, Croatia

KEYWORDS: sepsis-induced myocardial dysfunction, septic cardiomyopathy, echocardiography.

CITATION: Cardiol Croat. 2024;19(11-12):515. | https://doi.org/10.15836/ccar2024.515

***ADDRESS FOR CORRESPONDENCE**: Lana Maričić, Klinički bolnički centar Osijek, Ul. Josipa Huttlera 4, HR-31000, Osijek, Croatia. / Phone: +385-98-9359-695 / E-mail: dr.lmaricic@gmail.com

ORCID: Lana Maričić, https://orcid.org/0000-0001-6035-6760

The development of myocardial dysfunction in sepsis is associated with an increased mortality rate, and the prevalence of the development of septic cardiomyopathy in patients with sepsis ranges from 10-70%, depending on the research. Previous research has established that it is a global and reversible dysfunction of the myocardium. Almost half of these patients develop diastolic and systolic myocardial dysfunction. The presence of diastolic dysfunction is an early biomarker of the development of septic cardiomyopathy and has prognostic significance. Current research shows that myocardial damage occurs because of weakened myocardial perfusion, the direct adverse effect of inflammatory mediators, and bacteria and their toxins, as well as mitochondrial dysfunction. It is the consequences of the development of mitochondrial dysfunction that represent a key problem in the development of sepsis-induced cardiomyopathy. The pathophysiological mechanisms of the development of sepsis-induced myocardial dysfunction are the subject of many studies, and certainly the results of these studies have an impact on the therapeutic approach itself. The use of advanced echocardiographic methods, such as global longitudinal strain and magnetic resonance imaging, is a sufficiently sensitive method in the detection of sepsis-induced cardiomyopathy, but there are limitations to its application in the Intensive Care Unit. Current therapeutic possibilities in treatment of sepsis-induced cardiomyopathy include achieving hemodynamic stability of the patient and the use of antibiotic therapy. The discovery of new treatment methods is based on animal models, and the goal of immunomodulatory action at the cellular level, to reduce myocardial injury.[1-3] The aim of this paper is to present the current knowledge about the development of myocardial dysfunction associated with sepsis, and to review biomarkers, diagnostic methods in its recognition, as well as possible therapeutic methods in development.

RECEIVED:
October 5, 2024

ACCEPTED:
October 31, 2024

LITERATURE

1. Hiraiwa H, Kasugai D, Okumura T, Murohara T. Clinical implications of septic cardiomyopathy: A narrative review. Medicine (Baltimore). 2024 Apr 26;103(17):e37940. https://doi.org/10.1097/MD.0000000000037940
2. Lukić I, Mihić D, Varžić SC, Relatić KS, Zibar L, Loinjak D, et al. Septic Cardiomyopathy. Rev Cardiovasc Med. 2024 Jan 15;25(1):23. https://doi.org/10.31083/j.rcm2501023
3. Lima MR, Silva D. Septic cardiomyopathy: A narrative review. Rev Port Cardiol. 2023 May;42(5):471-481. English, Portuguese. https://doi.org/10.1016/j.repc.2021.05.020