

The Use of Echocardiography in Schistosomiasis

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Short Editorial related to the article: Long-Term Evolution of Patients with Important Pulmonary Hypertension due to Schistosomiasis

Schistosomiasis, a neglected tropical disease, affects 240 million people worldwide, with more than 90% of cases reported in Africa, according to the World Health Organization. The disease is endemic to South America, the Caribbean, Southeast Asia, and Africa, in areas with little infrastructure, especially lack of drinking water and basic sanitation. The infection is caused by helminths of the genus *Schistosoma*. Contamination occurs through contact with water where host snails are present. After penetrating human skin, the worms can migrate and produce eggs in the liver, lungs, and intestines.

During the acute phase, patients may be asymptomatic or develop myocarditis and pericarditis related to an allergic reaction to the schistosomes, in which eosinophils play an important role. Myocardial ischemia may rarely occur, and the exact mechanism remains unknown.

The most important complication of schistosomiasis is pulmonary arterial hypertension (PAH), and schistosomiasis is considered the main cause of PAH in some endemic countries.¹ Of the approximately 23 million people worldwide with hepatosplenic schistosomiasis, up to 5% develop PAH.²

Several mechanisms have been suggested for PAH in schistosomiasis, including obstruction of the pulmonary circulation by eggs, endothelial dysfunction due to inflammation, and portal hypertension leading to pulmonary overflow and endothelial cell dysfunction, similar to portopulmonary hypertension.

Schistosomiasis-induced PAH can be asymptomatic in early stages, but most patients will develop right heart failure in later stages of the disease.³

Echocardiography is the initial imaging method of choice for suspected cardiac involvement in patients with schistosomiasis. In the acute phase, it allows assessment of left ventricular systolic function and pericardial effusion in patients with suspected myopericarditis. In the chronic phase, when

there are signs and symptoms of right ventricular failure or pulmonary hypertension, echocardiography may reveal an enlarged right ventricle, hypertrophy of the right ventricular free wall, deviation of the interventricular septum to the left, tricuspid insufficiency, and increased right ventricular systolic pressure.

Castillo et al. evaluated 60 patients with PAH due to schistosomiasis and compared them with 50 healthy control subjects. Clinical and echocardiographic data were analyzed, and the group with PAH due to schistosomiasis was followed up for 10 years. The group with schistosomiasis-related PAH showed involvement of the right chambers with decreased parameters of systolic function and myocardial deformation, as well as lower values of left ventricular global longitudinal strain. The long-term evolution of patients with schistosomiasis showed elevated mortality, with larger dimensions of the right ventricle, lower fractional area change, lower tricuspid annular systolic velocity, and lower right ventricular global longitudinal strain.⁴

A systematic review has shown that patients with schistosomiasis-associated PAH have more favorable hemodynamic profile and survival rate than those with idiopathic PAH.⁵

Although there are reports of cardiac complications of this infection, they have not yet been validated by robust population data. This can be attributed to these patients' limited access to health care. Therefore, the true impact of this disease on the cardiovascular system may be underestimated, due to underdiagnosis and underreporting bias.

Likewise, the cardiovascular manifestations of this disease require attention, because they are rarely identified or are identified late, with devastating consequences.¹ Adequate recognition and treatment can improve these patients' survival and reduce the use of resources that are scarce in their regions.

Keywords

Schistosomiasis; Echocardiography; Cardiovascular Diseases

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Manuscript received April 6, 2023; revised manuscript April 6, 2023; accepted April 20, 2023.

DOI: <https://doi.org/10.36660/abcimg.20230037i>

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