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PREVALENCE OF REDUCED LEFT VENTRICULAR EJECTION FRACTION IN THE BRAZILIAN AMAZON BASIN AND DIAGNOSTIC USEFULNESS OF B-LINES BY LUNG ULTRASOUND

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RESUMO

background B-lines by lung ultrasound (LUS) indicate presence of extravascular lung water and has been associated with reduced left ventricular ejection fraction (LVEF) in patients with heart failure. We aimed to describe the prevalence of reduced LVEF in a community sample without a history of heart failure and to evaluate the usefulness of B-lines by LUS in this setting (clinicaltrials.gov: NCT04445103; www.malariaheart.com) methods In a cross-sectional study we examined a random sample of adults (≥18 years) from a community in the Northwestern part of the Brazilian Amazon (June-December 2020). All participants underwent state-of-the art echocardiographic image acquisition and 8-zone LUS by a medical doctor. No patients had known heart failure, recent chest trauma or clinical signs of infectious disease. Reduced LVEF was determined by Simpson's biplane method and defined as <45%. We assessed the mean of B-lines across all zones. Logistic regression models were Applied To investigate reduced LVEF and B-lines. results A total of 551 participants were included (39% men, mean 41±15 years) who had a mean LVEF of 57±5%. From this group 16 (3%) had LVEF <45%, corresponding to a prevalence of 29/1000 adults with reduced LVEF. Participants with reduced LVEF were older, had higher blood pressure and more frequently smoked. Number of B-lines by LUS was significantly higher among participants with reduced LVEF compared to those with normal LVEF (mean B-lines 4 vs 1, P=0.002. In logistic regression models, adjusted for clinical and cardiovascular risk factors, presence of a single B-line was associated with 1.18 higher odds of having reduced LVEF (95%CI 1.06-1.31, P=0.002). conclusion The prevalence of reduced LVEF was 29/1000 adults in a community from the Amazon Basin without a known history of heart failure. B-lines by LUS were significantly more present in participants with reduced LVEF. As LUS is feasible in resource limited settings, may be conducted by non-medical

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personnel and by the use of handheld devices, this may be useful to identify patients with reduced LVEF in rural communities where echocardiography is not available.

PALAVRAS-CHAVE: Reduced Left Ventricular, Ejection Fraction, Lung Ultrasound

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