

Echocardiographic strict negative criteria for suspected infective endocarditis. Can we avoid unnecessary echocardiograms?

A. Gabaldon-Perez, V. Marcos-Garces, E. Santas, M. Lorenzo-Hernandez, M. Soler, G. Nunez-Marin, H. Merenciano-Gonzalez, C. Bonanad, V. Bodi, F.J. Chorro

University Hospital Clinic of Valencia, Cardiology Department, Valencia, Spain

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Background: Infective endocarditis (IE) is an uncommon but potentially lethal disease that require a timely diagnosis. Transthoracic echocardiography (TTE) has a pivotal role in diagnosis and follow-up and should be requested if there is a clinical suspicion of IE. However, it is unclear which patients can benefit from a follow-up echocardiogram if the initial TTE shows no signs of IE. The strict negative criteria (SNC) have been recently proposed to avoid unnecessary follow-up echocardiograms.

Purpose: The objective of this study is to review the contemporary, real-world use of echocardiography in patients with suspected IE and analyze the possible effect that incorporating the SNC would have in our clinical practice.

Methods: We searched the echocardiography database for the words “endoc” and “veget” to find the tests that were performed for suspected or confirmed IE between January 2014 and December 2018. We extracted and manually reviewed all the echocardiographic data and applied the SNC to patients with an initial negative TTE. We reviewed the electronic clinical history to check if a final diagnosis of IE was established or not.

Results: We included a total of 957 echocardiograms in our registry. 493 (51.5%) did not meet the SNC. The main reasons for exclusion were the occurrence of more than mild valvular regurgitation (n=293, 30.6%), the presence of typical or suggestive signs of IE (n=128, 13.3%), the evidence of more than mild valvular stenosis or sclerosis (n=105, 10.9%) and a subop-

timal ultrasound quality (n=90, 9.4%). Globally, a follow-up echocardiogram was performed in 143 (14.9%) patients. Only in 25 (5.4%) of patients which fulfilled the SNC a follow-up echocardiogram was requested, compared to 60 (16%) patients which neither fulfilled the SNC nor showed echocardiographic signs of IE and 68 (53.5%) patients in which the SNC weren't met but showed echocardiographic signs of IE (p<0.001). After performing a binary logistic regression model, the only independent predictor of follow-up echocardiography in patients who didn't met the SNC was the presence of typical or suggestive signs of infective endocarditis on initial TTE (HR 2.84 [2.17–3.71], p<0.001).

Conclusions: 1. In a real-life, observational setting an initial TTE for suspected IE that fulfilled the defined SNC predicts a low probability of requesting a follow-up echocardiography (5.4%), even though these criteria were neither reported by the echocardiographer nor probably known by the clinician in charge of the patient.

2. The number of echocardiograms avoided by applying these criteria in this context is low.

3. A follow-up echocardiogram was requested more frequently if the SNC weren't met, especially when typical or suggestive signs of IE were described in the initial TTE (53.5% vs 16%). This factor seems to be the only independent echocardiographic variable that predicts the probability of requesting a follow-up echocardiogram in this subgroup of patients.

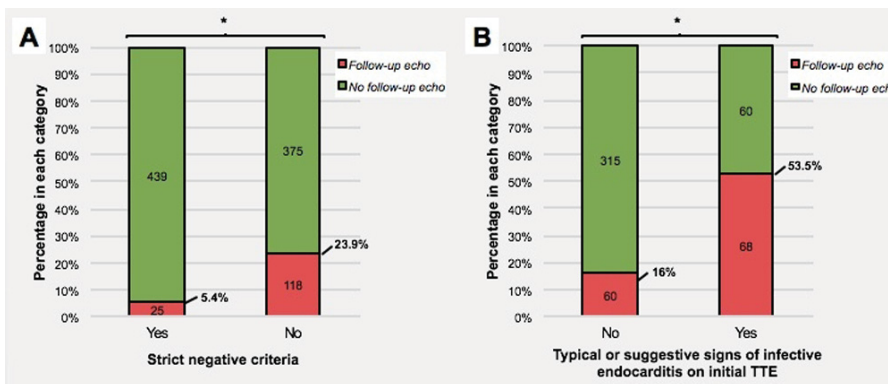


Figure 1