Speckle tracking echocardiography as a promising tool for the prognostic assessment of patients with sarcoidosis

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Background: Sarcoidosis is a chronic granulomatous disease characterized by multiorgan inflammatory involvement and recurrent relapses with significant impact on morbidity and mortality. The prognostic assessment of these patients is still challenging. Although the international guidelines didn't recommend basic transthoracic echocardiography (TTE) for diagnostic and prognostic assessment of sarcoidosis, speckle tracking echocardiography (STE) has emerged as more sensitive for the early detection of cardiac sarcoidosis and outcome.

Purpose: This prospective study aimed to assess the potential value of STE parameters for the prediction of major adverse cardiac events (MACE) and sarcoidosis relapse.

Methods: Consecutive patients with confirmed diagnosis of sarcoidosis who underwent transthoracic echocardiography (TTE) and subsequent pulmonary function tests (PFTs) were enrolled. Patients with acute events or treatment escalation between TTE and PFTs and previous cardiac surgery were excluded. All patients were followed for sarcoidosis relapse requiring increase in step-up therapy and MACE (cardiovascular death, cardiovascular hospitalizations, arrhythmias).

Results: 172 patients were included (111 females, 57.4±12.6 years); 56 patients showed extrapulmonary localizations of sarcoidosis; at baseline, 99 patients were on steroid and/or immunosuppressive therapy. During a median follow up of 2217 days, 8 deaths (3 cardiovascular deaths), 23 MACE and 36 sarcoidosis relapses were reported. Patients with MACE were older (p=0.0022), but didn't show significant differences in PFTs and sarcoidosis phenotype. LV global longitudinal strain (GLS) was the only echocardiographic index to show significant differences (lower values) in patients with MACE (p=0.025). LV GLS ≤17.13% (absolute value) was identified as a fair predictor of MACE both with ROC curves (AUC=0.64) and Kaplan Meier analysis (Fig. 1).

No significant differences of demographic, clinical, functional, and therapeutic data were observed between patients with/without sarcoidosis relapse. TTE revealed a significant reduction of LV ejection fraction (p=0.0432), tricuspid annular plane systolic excursion (TAPSE, p=0.0272) and global peak atrial longitudinal strain (PALS, p=0.0012) in patients with relapse. Among these 3 parameters, PALS ≤28.5% showed to be the best predictor of sarcoidosis relapse with ROC (AUC=0.7155) and Kaplan Meier curves (Fig. 2).

Conclusions: Our results highlight a potential role of LV GLS and PALS as prognostic markers in sarcoidosis, suggesting the use of STE in the clinical management of these patients, regardless the evidence or the suspect of cardiac localizations of the disease.

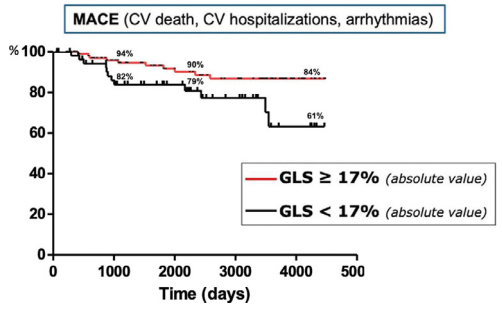

Figure 1

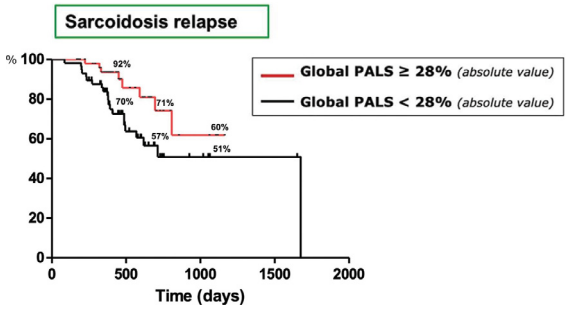

Figure 2