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AB1094

SCAR IMAGING ECHOCARDIOGRAPHY WITH ULTRASOUND MULTI-PULSE SCHEME [eSCAR] FOR THE DETECTION OF MYOCARDIAL FIBROSIS IN PATIENTS WITH SYSTEMIC LUPUS ERYTHEMATOSUS: PRELIMINARY RESULTS.

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Background: Myocardial fibrosis is a severe complication of immune-mediated diseases, occurring in up to 30% of systemic lupus erythematosus (SLE) patients. Cardiovascular magnetic resonance imaging allows myocardial scar detection in SLE patients, but it is costly, time consuming, and unfit for patients with renal disease. Scar imaging echocardiography with ultrasound multi-pulse scheme (eSCAR) is a novel and promising technique that proved to be effective in detecting ischemic myocardial scars in patients with coronary artery disease (CAD).

Objectives: To evaluate if the eSCAR technique is feasible and to better characterize SLE patients with cardiac involvement by eSCAR.

Methods: We recruited consecutive patients with SLE classified according to the 2019 EULAR/ACR recommendations. Patients with diabetes mellitus, obesity, prior cardiovascular (CV) disease or anti-phospholipid (aPL) syndrome were excluded. Eligible participants underwent a thorough clinical assessment and a full echocardiography examination, including the eSCAR technique. Data on clinical variables were collected; disease activity was estimated by the SLE Disease Activity Index (SLEDAI) score. Lupus flare was defined as new/worse clinical signs and symptoms and/or lab measurements and a change/increase in treatment. Patients were compared according to the presence or absence of eSCAR. In this preliminary report, only descriptive analyses are provided. Continuous data are reported as median [25th; 75th percentile].

Results: We enrolled fifteen patients diagnosed with SLE (age 45 years [36; 47], disease duration 14 years [12; 20]), 13 (87%) were females. Median SLEDAI was 5 [2; 8]. The most frequent disease involvement included arthritis (73%), skin and mucous membranes (60%), lupus nephritis (47%) and cytopenias (47%). Patients had received treatment for lupus with 5 drugs [5; 8]. Cumulative prednisone dosage was 25 g [20; 44], whilst the current daily dosage of prednisone was 4 mg [0.0; 5.0]. Hypertension was present in 4 (27%) and hypercholesterolemia in 2 (13%) subjects; 4 patients (27%) were current or past smokers. The eSCAR technique was feasible in all participants with no adverse effects. Myocardial scars were detected in 2 patients (eSCAR-positive 13%; figure and table); eSCAR positive patients were females and had no history of cardiovascular involvement (including pericarditis); they had at least one relapse within the prior 12 months before enrollment; at least one cardiovascular risk factor was found in both patients (one was a smoker and the other one had hypertension); none received prior treatment with cyclophosphamide or rituximab; they had no renal involvement; arthritis and cytopenia were the prominent features of disease; anti-dsDNA titer was higher than eSCAR-negative patients.

Conclusion: Echocardiography allowed detection of myocardial scars in patients with SLE. Our preliminary data show that eSCAR is feasible and well tolerated in a SLE population. Further data from this ongoing study will help investigate whether eSCAR might improve risk stratification, by identifying myocardial involvement in SLE patients with a more active disease.

Table

	eSCAR positive Patient 1	eSCAR positive Patient 2	eSCAR negative SLE patients (n=13)
Age, years	32	45	45
Sex	Female	Female	11 F / 2 M
ESR mm/h	29	7	15
CRP mg/L	3	0.6	2
Anti-dsDNA (IF)	Positive	Positive	Positive 7 (47)
Anti-dsDNA (CLIA)	105	149	34 [7; 66]
C3 (mg/L)	61	80	85 [70; 94]
C4 (mg/L)	4	13	10 [9; 16]
P-Cr (mg/dL)	0.6	0.8	0.7 [0.6; 0.7]
aPL	Positive	Negative	7 (47)
Disease duration, years	15	28	14 [12; 15]
SLEDAI	12	0	5 [2; 8]
Lupus flare in the past 12 months	yes	yes	5 (33)
Cumulative prednisone dosage (g)	60	61	24 [19; 32]
Previous use of cyclophosphamide	No	No	3 (20)
Previous use of rituximab	No	No	1 (1)

Figure. A. Myocardial fibrosis in the interventricular septum (eSCAR-positive patient). B. no myocardial fibrosis (eSCAR-negative patient)

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DIAGNOSTIC PERFORMANCE OF THE AORTIC WALL THICKENING DETERMINED BY ROUTINE CT-SCAN FOR THE DIAGNOSIS OF AORTITIS OVER 50 YEARS OF AGE.

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Background: Making the diagnosis of aortitis may be challenging in the "real life". ¹⁸F-FDG PET/CT (PET) has emerged as the gold standard to diagnose aortitis but it is expensive and not always quickly available. Injected CT-scan (CT) can also be used to diagnose aortitis, which is suspected when there is an extended circumferential, non-atherosclerotic increase of the aortic wall thickness (AWT). However, data are lacking on the diagnostic performances of AWT to diagnose aortitis.

Objectives: To describe the diagnostic performance of AWT measured by CT to diagnose aortitis in patients over 50 years of age.

Methods: We performed a monocentric retrospective study between 2013 and 2018 including 1) all patients over 50 years of age who had performed a PET for inflammation or fever of unknown origin or for suspicion of classical giant cell arteritis (GCA), aortitis or large vessel vasculitis (LVV); 2) with an injected CT-scan performed in the 30 days before or after PET; 3) not diagnosed to have cancer or infection 4) exposed to corticosteroids for less than 3 days at the time of CT and PET. The gold standard for aortitis was PET positivity according to the 2018 European consensus grading criteria (1). AWT was measured at different aortic segments (ascending aorta, descending thoracic aorta and suprarenal abdominal aorta) by a single radiologist unaware of the result of PET and of the previous interpretation of CT-scan.

Results: Eighty-nine patients were included (female: 47%; mean age 68.8 (50-93) years; GCA: n=28). Twenty patients had aortitis according to the PET result (GCA: n=16).

Mean maximal aortic wall thickening was: 3.25 mm (median: 3.3; range: 2-4.6) in the aortitis group and 2.2 mm (median: 2.1; range 1-3.8) in the negative PET group (p < 0.001).

The best ROC curve AUC (85%) was obtained considering the maximal AWT on the thoracic and suprarenal abdominal aorta only. The AUC of the ROC curve at the ascending thoracic aorta was poor (75%) (Figure).

The Youden's index of the ROC curve was 2.6 mm with a sensitivity of 85 % and specificity of 71 % (Table) for aortitis diagnosis. An AWT ≤ 2.0 mm exclude the diagnosis of aortitis. The 3 mm threshold had a PPV of only 52% and an AWT ≥ 4 mm was fully specific.

Conclusion: Aortitis diagnosis using a routine injected CT-scan interpreted by a single radiologist may be certain when showing an AWT ≥ 4 and excluded for an AWT ≤ 2.0. The threshold of 3 mm seems not sufficiently specific to diagnose aortitis without a confirmatory PET.