

Assessment of Left Atrium Volume and Function in Rheumatoid Arthritis Patients by Three-Dimensional Transthoracic Echocardiography

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Background:

Rheumatoid arthritis is the most common systemic autoimmune disease and affects approximately 1-3% of people worldwide. It is an invalidating disease associated with changes in life quality and reduced life expectancy. Among extra-articular complications, cardiovascular involvement represents one of the leading causes of morbidity and mortality. Left atrial (LA) volume and function are crucial and serve as useful predictors of cardiovascular outcomes as AF, Congestive heart failure, stroke and death.

Aim:

The aim of this study is to assess the LA volume and function by 3D three-dimensional echocardiography in RA patients. Subjects and Subjects.

Methods:

This study was conducted on 60 patients with Rheumatoid arthritis who were diagnosed according to the criteria of the American college of rheumatology classification for RA (ACR/EULAR 2010) attending the rheumatology and rehabilitation out-patient clinic at Minia university hospital during the period from september 2019 to september 2020.

Patients were classified into active RA group (group A) and remittent RA (group B) according to simplified disease activity index (SDAI) score in addition to 30 healthy subjects with similar age and sex as a control group.

Exclusion criteria:

. systemic HTN, DM
Already existing cardiac diseases (echocardiographic evidence of regional or global wall motion abnormalities, Significant valvular

heart disease, atrial fibrillation, Congenital heart disease) Advanced renal disease. Advanced liver disease. Chronic obstructive air way diseases. Poor image quality.

Methods:

All participants included in the study were subjected to:

- 1-Thorough history taking and clinical examination, 12 leads ECG.
- 2-Routine laboratory investigations.
- 3-Conventional 2D trans-thoracic echocardiography.
- 4- 3D trans-thoracic echocardiography.

Statistical analysis: Statistical analysis was conducted using the Statistical Package for Social Sciences (SPSS software version 25).

Results:

3D echocardiographic parameters of LA volumes (LAV max, LAV min, LAV preA) are significantly increased while the parameters of LA function (AEF, PEF, EI) are significantly impaired. Especially during disease activity ($p < 0.01$)

Conclusion:

Three-dimensional echocardiography of LA revealed increased LA volumes and impaired LA phasic function in RA patients, especially during disease activity .

Keywords:

Rheumatoid arthritis(RA),
left atrium (LA),
three-dimensional Echocardiography (3DE).