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## The evaluation of pulmonary artery distensibility by echocardiography in patients with rheumatoid arthrtitis with having no pulmonary hypertension

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**Introduction:** Rheumatoid arthritis is a systemic inflammatory disease that has pulmonary system involvement. Fibrosis of the lungs and interstitial lung disease are associated with RA in some patients, and early diagnosis is a cornerstone in treatment. Pulmonary artery distensibility has been investigated using MRI and echocardiography. It has been found well correlated with the severity of pulmonary hypertension. The aim of this study was to investigate whether echocardiographic measurement of the right pulmonary artery distensibility (percentage change in diameter of the right pulmonary artery in systole and diastole) may be of value in assessing the presence of pulmonary disease before it is symptomatic or it can be diagnosed by conventional methods.

**Materials and Methods:** Forty-three patients (6 male, mean age:  $55.3\pm12.3$ , mean disease duration: $12.9\pm9.7$  years) with RA and age and sex matched 18 healthy subjects ( 4 male, mean age:  $42.6\pm15.7$  ) recruited for the study. The body mass index values were similar in both groups. The RA group was clear of lung involvement proved with symptoms and chest x-rays. Mean pulmonary arterial blood pressure is normal in both groups (patient and control). In addition to conventional echocardiographic evaluation all subjects are evaluated for right pulmonary artery distensibility index (RPAD Index), which is calculated as the difference in diameter of the right pulmonary artery in systole and diastole. All echocardiographic measurements were done by two cardiologists and both inter and intraobserver variabilities were < 5% for all echocardiographic variables.

**Findings:** Mean RPAD was 0.17 ±0.05 mm in patient group and 0.21±0.06 mm in control group. RPAD was higher in patient group but there wasn't a statictically significant difference for RPAD between patient and control group.

**Results:** According to our results, RPAD is worsened in patients with RA, but it's not significant. Low RPAD may be an early sign of lung involvement in RA and it should be verified with follow-ups for longer duration closely.

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