

**The role of musculoskeletal ultrasound in  
assessing disease activity in rheumatoid arthritis  
patients with associated fibromyalgia**

*Thesis*

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and Rehabilitation*

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## **Abstract**

**Objectives:** to study correlation among gray-scale 12-joint ultrasound score (GSUS12), power Doppler 12-joint ultrasound score (PD-US12), disease activity score-28 joints (DAS28) and clinical disease activity index (CDAI) in RA patients with and without fibromyalgia (FM) respectively.

**Patients and methods:** This cross-sectional study was conducted on 100 patients fulfilling the 2010 ACR/ EULAR 2010 RA classification criteria with DAS 28(ESR) > 2.6 and/ or clinical disease activity index (CDAI)> 2.8. Patients were allocated into 2 groups: RA with FM and RA without FM. Both groups were subjected to disease activity scoring using the DAS28 / CDAI score, assessment of functional status using modified health assessment questionnaire (MHAQ) score, assessment of fibromyalgia and ultrasonographic assessment using the 12 joint simplified joint score.

**Results:** DAS-28 and CDAI show highly significant statistical difference (P-value <0.001) between both groups with higher mean in RA with FM group 4.99(±0.82) and 30.49(±10.59) respectively. As regarding ultrasonographic finding no significant difference between both groups. RA without FM, DAS 28 and CDAI showed significant positive correlation (p value=0.006, 0.002) respectively with GS-US 12.

**Conclusion:** fibromyalgia commonly occurs in RA patients and causes higher clinical disease activity score. Therefore, it can influence management of RA. MSUS can work as complement to physical examination for assessment of RA disease activity especially when associated with concomitant FM.

**Key word:** rheumatoid arthritis, fibromyalgia, MSUS, disease activity

## *Summary*

This study was conducted to assess the role of MSUS in evaluation of RA patients with FM.

This cross-sectional study was conducted on 100 patients in the outpatient Rheumatology Clinic, Cairo University from July 2019 to July 2020. Patients fulfilling the 2010 ACR/ EULAR 2010 RA classification criteria with DAS 28(ESR) > 2.6 and/ or clinical disease activity index (CDAI)> 2.8 were recruited. According to fulfilling or not fulfilling 2016 fibromyalgia classification criteria, patients were categorized into 2 groups.

Our results are:

There is female predominance in (RA/FM) group (95%) with significant statistical difference (P-value=0.002) between both groups. TJC shows highly significant statistical difference (P-value <0.001) between both groups with higher mean in RA with FM group. SJC shows significant statistical difference (P-value= 0.011) between both groups with higher mean in RA without FM group. P-VAS shows highly significant statistical difference (P-value =0.001) between both groups with higher mean in RA with FM group.

DAS-28 and CDAI show highly significant statistical difference (P-value <0.001) between both groups with higher mean in RA with FM group. Doppler US-12 and GSUS-12 showed no significant difference between both groups with p value.

In RA with FM group, there was positive significant correlation of:

DAS 28 with GS-US 12 (p value=0.022), Disease duration with erosions (p value=0.031), SJC with synovial hypertrophy, effusion, tenosynovitis, erosion and power Doppler with (p value=0.003, 0.003, 0.015, 0.001 and 0.001) and DAS-28 with effusion (p value=0.012).

RA Without FM, there was positive significant correlation of:  
DAS 28 and CDAI with GS-US 12 with (p value=0.006, 0.002)  
respectively, TJC with synovial hypertrophy, effusion and erosion with  
(p-value=0.046, 0.047, 0.004) respectively, SJC with synovial  
hypertrophy, effusion, tenosynovitis, erosion and power Doppler with (p-  
value=0.001, 0.001, 0.037, 0.004 and 0.015) respectively, P-VAS with  
synovial hypertrophy with (p-value=0.015), DAS-28 with synovial  
hypertrophy with (p-value=0.023) CDAI with synovial hypertrophy and  
erosion with (p-value=0.005, 0.017) respectively and ESR with power  
Doppler with (p-value=0.046).

