



Role of High-Resolution Ultrasound in Detection and Assessment of Disease Activity in Rheumatoid Arthritis

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List of abbreviations

RA	Rheumatoid Arthritis
US	Ultrasound
ACCP	Anti-cyclic citrullinated peptide
ACPA	Anti-citrullinated protein antibody
CDUS	Color Doppler Ultrasound
CRP	C reactive protein
PIP	Proximal interphalangeal
DIP	Distal interphalangeal
ESR	Erythrocyte sedimentation rate
GSUS	Grey scale ultrasound
IFN-γ	Interferon gamma
IL-1	Interleukin 1
IL-2	Interleukin 2
IL-6	Interleukin 6
MCP	Metacarpophalangeal
PACS	Picture archiving and communication system
PD-US	Power Doppler ultrasonography
PGs	Prostaglandins
RF	Rheumatoid Factor

INTRODUCTION

Rheumatoid arthritis (RA) is a chronic autoimmune inflammatory disease with multi organ affection mainly the joints. It is characterized by synovitis, synovial hypertrophy, joint effusion, pannus formation and bone erosions resulting in specific bony deformities. **(Toprak et al., 2014; Do prado et al., 2018)**

RA main cause is still unknown, however; genetic and environmental factors plays an important role in the disease process. RA is the most common disease affecting the joints and it represents a long-term inflammation of the synovial membrane. New molecules and cells are discovered in the biologic pathway and changes the disease management by being identified as targets for therapeutic intervention. **(Aletaha D and Smolen JS., 2018)**

RA may occur in any age group, but it is more common in females 30 to 50 years of age. **(Yang et al., 2019)**

Small joints as metacarpophalangeal MCP, proximal interphalangeal PIP and metatarsophalangeal MTP joints are the most frequently - but not the only - involved joints in RA. **(Hassan et al., 2019)**

Musculoskeletal Ultrasound (MSUS) is a real time, quick, safe widely used tool nowadays in assessment of RA and RA response to therapy hand in hand with clinical examination. Grey-scale (GS) US – B mode- and Power Doppler (PD) US are used in detection of early synovitis, synovial proliferation and bone erosions in comparison to conventional radiograms that are no longer being commonly used for early detection of the disease. In