Rheumatoid arthritis of the hand: monitoring with a simplified MR imaging scoring method--preliminary assessment.

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Abstract

PURPOSE: To assess a simplified scoring method (Simplified Rheumatoid Arthritis Magnetic Resonance Imaging Score [SAMIS]) developed to shorten interpretation time, while retaining both correlation with Rheumatoid Arthritis Magnetic Resonance Imaging Score (RAMRIS) and same or better intra- and interreader reliability.

MATERIALS AND METHODS: Ethics board approval and written patient consent were obtained. The study was HIPAA compliant. Thirty-eight patients with rheumatoid arthritis and 20 patients with no or early unclassified arthritis underwent magnetic resonance imaging of both wrists and hands. RAMRIS was used to evaluate erosions (scale, 0-10), edema (scale, 0-3), and synovitis (scale, 0-3). SAMIS assessed only one hand and was based on the radiographic Simple Erosion Narrowing Score, thus reducing the number of study areas from 116 to 36. Erosions were scored with a scale from 1 to 10. Edema and synovitis were, respectively, scored with scales from 0 to 1 and 0 to 2. SAMIS correlation with RAMRIS was tested by using the Spearman test. Last, the intra- and interobserver reproducibility of both scores were calculated.

RESULTS: SAMIS was closely correlated with RAMRIS for the entire series (r = 0.91, 0.79, and 0.94, respectively, for erosion, edema, and synovitis), as well as in patients with rheumatoid arthritis (r = 0.93, 0.81, and 0.92) and those with no or unclassified arthritis (r = 0.83, 0.73, and 0.94). The time needed to assess examination results with RAMRIS ranged from 5 to 20 minutes (13 minutes +/- 3.90 [standard deviation]), whereas it ranged from 2 to 7 minutes (5 minutes +/- 1.45) with SAMIS. For each of the three features (erosion, edema, and synovitis), intraobserver agreement (RAMRIS: kappa = 0.67, 0.94, 0.81, respectively; SAMIS: kappa = 0.66, 1.0, 0.91) and interobserver agreement (RAMRIS: kappa = 0.61, 0.58, 0.74, respectively; SAMIS: kappa = 0.59, 0.81, 0.81) were good to excellent.

CONCLUSION: This simplified reproducible scoring scheme could be used to monitor joint damage in rheumatoid arthritis.