Magnetic resonance imaging findings of the cervical spine in patients with rheumatoid arthritis. A cross-sectional study

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Abstract

Objectives

To investigate by magnetic resonance (MR) imaging the occurrence of cervical spine (CS) involvement in rheumatoid arthritis (RA) patients.

Methods

Fifty-one consecutive unselected patients, who fulfilled the revised American College of Rheumatology criteria for RA, were investigated. All patients had a complete physical and laboratory evaluation. Radiological evaluation included hand and wrist x-rays, as well as CS radiographs in anteroposterior, lateral and lateral in full flexion views. In addition, MR (Spin Echo T2-weighted sagittal scans [neutral and flexion position], plain and contrast enhanced T1-weighted sagittal and axial scans) was performed in all patients. Hand x-rays were evaluated according to the Larsen’s criteria, while CS radiographs were evaluated according to Winfield classification. Disease activity was assessed by disease activity score for 28 joint indices (DAS-28).

Results

There were 42 females and 9 males with a mean age of 56.5 ± 10.4 years and mean disease duration 12.4 ± 8.5 years. Thirty-three patients (64.7%) had positive IgM rheumatoid factor (RF). Thirty patients presented clinical findings, mainly cervical pain and stiffness of CS (25 with positive and 5 with negative MR), while, radiological findings of CS involvement were found in 40 patients. Forty-four patients (86.2%) presented MR findings of CS involvement (peri-dental pannus 88%; dens erosion 23.5%; atlantoaxial subluxation 13.7%; subaxial subluxations 10%; brainstem compression 5.9%). Peridental pannus correlated with high DAS-28, positive IgM RF, and advanced erosive changes of the wrist and hand (p < 0.05) in the univariate analysis. However, multivariate logistic regression analysis did not confirm such correlation.

Conclusions

We conclude that the frequency of CS involvement in Greek RA patients is high but the destructive changes are mild. However, in patients with active erosive peripheral disease it is very probable to also have some changes in CS. These may be clinically important and in such cases, MR may offer valuable information.

Key words

Rheumatoid arthritis, cervical spine, magnetic resonance imaging, cervical spine radiographs, Larsen score, DAS-28.