

Smokers in early axial spondyloarthritis have an earlier disease onset, more inflammation and damage: results from the DESIR cohort

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Background: Few studies have investigated the influence of smoking in axial spondyloarthritis (SpA) and previous analyses have focused on ankylosing spondylitis (AS) rather than the early disease stage of axial SpA. In patients with AS, it has been shown that smokers have more limited physical function (1-3) and increased radiographic damage (4).

Objectives: To investigate the associations of smoking with various clinical and imaging outcomes in early axial SpA patients.

Methods: Seven hundred and eight patients with IBP of less than 3 years duration defined by Calin or Berlin criteria were recruited in the DESIR cohort, a multicenter study in France. Six hundred and fifty four fulfilled at least one of the SpA criteria sets (Modified New York (mNY), European Spondyloarthropathy Study Group (ESSG), Amor, and/or ASAS axial SpA) and were included in the analyses. Clinical, demographic and imaging parameters were compared between smokers and non-smokers and variables with significant differences in univariate analyses were used as dependent variables in multivariate linear and logistic regression models adjusted for age, gender, duration of inflammatory back pain, race, HLA-B27 status and other potential confounders.

Results: Our study population was characterized by young age (mean 33.6, median 33.0 years) and short duration of symptoms (mean 1.5, median 1.4 years). Thirty seven percent of the patients were current smokers. In multivariate analysis, smoking was associated with earlier onset of inflammatory back pain (IBP) (regression coefficient (B)=-1.46; p=0.04), higher disease activity reflected both by the Ankylosing Spondylitis Disease Activity Index (ASDAS-CRP) (B=0.20; p=0.03) and BASDAI (B=0.50; p=0.003), worse functional status reflected by the BASFI (B=0.39; p=0.02), more MRI inflammation of the sacroiliac (SI) joints (odds ratio (OR)=1.57; p=0.02) and of the spine (OR=2.33; p<0.001), MRI structural lesions of the SI joints (OR=1.54; p=0.03) and of the spine (OR=2.02; p=0.01) and higher modified Stoke Ankylosing Spondylitis Spinal Score (mSASSS) (B=0.54; P=0.03). Smoking was also associated with poorer health-related quality of life (HRQoL), assessed both by the AS Quality of Life (ASQoL) score (B=1.38; p<0.001) and by the Short Form 36 (SF-36) physical (B=-4.89; p<0.001) and mental (B=-5.90; p<0.001) component scores.

Conclusion: In patients with early axial SpA, smoking was independently associated with earlier onset of IBP, higher disease activity, poorer functional status, increased axial inflammation on MRI and axial structural damage on MRI and radiographs, and worse HRQoL. These observations may have important implications in the education of patients with axial SpA and highlight the need to consider smoking as one of the potential prognostic factors in axial SpA as well as one of the environmental factors potentially involved in the pathogenesis of the disease.

References:

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