The response rate for participation in the study was 61%. Because the analysis of the influence of weight, BMI and lifestyle factors was based on an internal comparison of responders, non-participation is unlikely to have had a major effect on the observed results. Intraobserver agreement levels for assessment of the radiographic features were good ($\kappa =$ 0.7–0.8), and it seems unlikely that random error in scoring the films importantly attenuated the associations. Finally, the results were derived from a predominantly Caucasian population in north-eastern Scotland, and the data should be extrapolated beyond this population with caution. Previous population-based studies examining the effect of regular levels of physical activity and smoking provide somewhat conflicting results.[5 7–9] Our data suggest no important influence of these factors on the occurrence of the individual radiographic features of lumbar disc degeneration. By contrast, increased weight was associated with an increased risk of osteophytes.

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Analysis of response to infliximab in ankylosing spondylitis according to the axial and/or peripheral involvement: autoantibodies and drop outs are more frequent in the peripheral subset

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Infliximab, a monoclonal antibody that targets membrane and soluble tumour necrosis factor (TNF)α, has recently been successfully used to treat patients with active ankylosing spondylitis.[1 2] No distinction in terms of axial or peripheral involvement has ever been considered in evaluating the clinical response and autoantibody induction secondary to the infliximab regimen in patients with ankylosing spondylitis.

In this study, we evaluated the effectiveness and tolerability of infliximab in 23 patients with ankylosing spondylitis with only axial involvement (AS_{axial}) and in 24 patients with ankylosing spondylitis with axial and peripheral arthritis ($AS_{peripheral}$) (Bath Ankylosis Spondylitis Disease Activity Index (BASDAI) $\geq$4),[3] and the occurrence of autoantibody induction[4–7] in the two different subsets and their clinical relevance in terms of outcome. All patients received infliximab (5 mg/kg) according to the standardised regimen and stable doses of disease-modifying antirheumatic drugs (methotrexate 10–20 mg/week). Doses of non-steroidal anti-inflammatory drugs were allowed to be reduced but not increased during the study.

Disease activity was evaluated at baseline and before each consecutive infusion by the use of the BASDAI, erythrocyte sedimentation rate and C-reactive protein (mg/l) serum level. Physical function was evaluated using the Bath Ankylosis Spondylitis Functional Index and Bath Ankylosis Spondylitis Metrology Index. Serum samples were assessed at baseline and every 3 months for the presence of antinuclear antibodies, anti-dsDNA and antiphospholipid (aPL) antibodies. The cut-off concentration for positive antinuclear antibodies titre was 1:160; anticardiolipin was considered positive when above the cut-off level (Ig G >10 GPLU/ml, IgM >10 MPLU/ml). The positive cut-off level for lupus anticoagulant was Tissue Thromboplastin Index>1.25, kaolin clotting time >15 and dilute Russell's viper venom time >36s.

Abbreviations: aPL, antiphoshoipid; AS_{axial}, ankylosing spondylitis with only axial involvement; $AS_{peripheral}$, ankylosing spondylitis with axial and peripheral arthritis; $AS_{negative}$, ankylosing spondylitis without autoantibodies; $AS_{positive}$, ankylosing spondylitis with autoantibodies; BASDAI, Bath Ankylosis Spondylitis Disease Activity Index

Table 1 Disease activity, physical function, acute-phase reactants and autoantibodies at baseline and at the last observation

	AS_{axial} (n = 23)	$AS_{peripheral}$ (n = 24)	p Value
Mean (SD) age (years)	48.4 (8.9)	45.4 (13.8)	NS
Mean (SD) disease duration (years)	17.2 (8.5)	12.4 (10)	NS
$BASDAI_{T0}$	5.1 (1.1; 4.7)	5.3 (1.2; 5.3)	NS
$BASFI_{T0}$	4.5 (2.5; 3.5)	3.7 (2.5; 3.5)	NS
$BASMI_{T0}$	5.7 (2.1; 5.0)	3.4 (2.6; 3.5)	0.004
$BASDAI_{T54}$	3.0 (2.2; 2.8)	3.0 (2.4; 2.8)	NS
$BASFI_{T54}$	3.4 (2.5; 2.7)	3.0 (2.5; 2.0)	NS
$BASMI_{T54}$	5.2 (2.3; 5.0)	3.0 (2.5; 3.0)	0.03
BASDAI50, n (%)	12 (60)	11 (45.8)	NS
ESR_{T0}	32.2 (24.1; 31.0)	35.2 (19.2; 33.0)	NS
CRP_{T0}	27.3 (28.2; 20.0)	30.6 (40; 21.8)	NS
ESR_{T54}	13.6 (13.6; 9.0)	18.7 (23.7; 8.5)	NS
CRP_{T54}	7.7 (9.2; 4.3)	14.3 (21.9; 3.8)	NS
Immunology T54			
ANA, n (%)	3 (13)	8 (33.3)	NS
LAC, n (%)	6 (26.1)	11 (45.8)	NS
aCL, n (%)	1 (4.3)	6 (25)	NS
aPL (aCL+LAC), n (%)	7 (30.4)	14 (58.3)	0.05; OR 3.2 (CI 1.0 to 10.6)
Drop out, n (%)	1 (4.3)	4 (16.7)	NS

aCL, anticardiolipin; ANA, antinuclear antibodies; aPL, antiphospholipid; AS_{axial}, ankylosing spondylitis with only axial involvement; $AS_{peripheral}$, ankylosing spondylitis with axial and peripheral arthritis; BASDAI, Bath Ankylosing Spondylitis Disease Activity Index; BASMI, Bath Ankylosing Spondylitis Metrology Index; CRP, C reactive protein; ESR, erythrocyte sedimentation rate; LAC, lupus anticoagulant; NS, non-significant. BASDAI50 represents the percentage of patients reaching a BASDAI improvement of 50% at the last observation. T0 and T54 represent the baseline and the final observation, respectively
*Values are mean (SD; median) unless otherwise indicated.

Most patients in both groups completed the 54-week study period. BASDAI and Bath Ankylosis Spondylitis Functional Index scores, like C-reactive protein and erythrocyte sedimentation rate levels, significantly improved in both groups ($p<0.001$) from baseline to week 54 without any difference between the two groups. At week 54, the Bath Ankylosis Spondylitis Metrology Index score was significantly lower in the $AS_{peripheral}$ group ($p = 0.03$), and the number of swollen joints improved in all but two of the patients with $AS_{peripheral}$ (2.1 (1) *v* 0.4 (0.8)). The patients with AS who developed autoantibodies (n = 24) had higher BASDAI (5.6 (1.2) *v* 4.8 (1.0), $p = 0.03$) at baseline.

In all, 24 of 47 (51%) patients with ankylosis spondylitis developed autoantibodies ($AS_{positive}$; table 1); 7 (30.4%) AS_{axial} patients were found to be positive for aPL compared with 14 (58.3%) patients with $AS_{peripheral}$. Patients who were $AS_{positive}$ showed mean BASDAI score and mean erythrocyte sedimentation rate higher than patients who were $AS_{negative}$ at baseline; 5 (20.8%) patients who were $AS_{positive}$ discontinued the treatment compared with no withdrawals in the $AS_{negative}$ subset ($p = 0.05$). No systemic lupus erythematosus or aPL-related disease manifestations occurred during the 12 months of follow-up.

TNFα blockade could promote humoral autoimmunity by inhibiting the induction of cytotoxic T lymphocyte response, which suppresses autoreactive B cells.[8] Moreover, TNFα blockade was shown to induce an interferon α genetic pattern that clearly mimics the inflammatory genetic background of patients with systemic lupus erythematosus.[9]

Our study shows that infliximab is effective in patients with ankylosis spondylitis, either in those with only axial involvement or in those with peripheral and axial involvement. The subset presenting autoantibodies after infliximab treatment shows a greater inflammatory background at baseline, and $AS_{peripheral}$ seems more prone to the occurrence of autoantibodies during TNFα blockade treatment. A significantly higher rate of dropouts in patients with ankylosis spondylitis who developed the autoantibodies we considered was observed. The significantly different occurrence of aPL antibodies between $AS_{peripheral}$ and AS_{axial} suggests a biological difference between the two clinically identified subsets of patients with ankylosis spondylitis that need further investigations and that could explain the different rate of clinical success in the spondyloarthropathies and in rheumatoid arthritis.[10]

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