Anti-drug antibodies and low serum trough infliximab levels correlate with disease activity measures in spondyloarthritis patients on an as-needed infliximab treatment

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Abstract

Aim

In India, many centers use infliximab at lower doses of 3-5 mg/kg without the loading dose for spondyloarthritis (SpA) patients. It is then continued on an as-required basis, rather than a fixed schedule. Our study was undertaken to see if the trough drug levels and anti-drug antibodies in patients with SpA treated with as-needed infliximab dosing correlated with the disease activity measures.

Methods

Thirty-five adult SpA patients in the age group 18-70 years were recruited. They had received three or more infusions of infliximab at 3-5 mg/kg over the past 6 to 12 months. Patient's serum tumor necrosis factor-α, trough infliximab levels and anti-drug antibodies were measured by enzyme-linked immunosorbent assay technique. The disease activity was quantified by Ankylosing Spondylitis Disease Activity Score – erythrocyte sedimentation rate/ C-reactive protein (ASDAS-ESR/CRP) scores. Correlation between quantitative variables was analyzed by the Spearman's correlation assay. The difference in mean trough infliximab and ASDAS between the drug antibody positive and negative patients was assessed using the Mann-Whitney *U* test.

Results

There was a significant negative correlation between the trough infliximab levels and the ASDAS-ESR (rs = −0.57, $P < 0.01$) and ASDAS-CRP scores ($rs = -0.53$, $P < 0.01$). Anti-drug antibodies were positive in 68.7% of the patients and in comparison to the antibody negative patients, had significantly higher ASDAS-ESR and ASDAS-CRP scores.

Conclusions

Spondyloarthritis patients on low-dose, as-needed infliximab therapy, have both the trough infliximab and anti-drug antibodies correlate significantly with the measures of disease activity. We hypothesize that trough infliximab levels and anti-drug antibodies may be used to predict a suboptimal response due to secondary resistance in SpA patients.