The primary efficacy endpoint was the proportion of patients with JIA American College of Rheumatology 30 (ACR30) flares on tocilizumab versus placebo in the 160 patients who completed Part 2 (Weeks 16 to 40). Significantly fewer patients randomized to tocilizumab had a JIA ACR30 flare compared with those randomized to placebo: 26% versus 48%, respectively. The adjusted difference in the mean risk of flares between groups was –0.21 (95% CI, –0.35 to –0.08; p=0.0024).

The percentage of patients who demonstrated improvements in JIA ACR30/50/70/90 responses at Week 16 was lower among the patients randomized to 8 mg/kg tocilizumab who weighed <30 kg compared with the other 2 tocilizumab treatment groups.

At Week 40, 74% of patients assigned to tocilizumab maintained a JIA ACR30 response, 73% maintained a JIA ACR50 response, 65% maintained a JIA ACR70 response, and 40% maintained a JIA ACR90 response.

Infections and infestations were the most common adverse event in patients on active treatment, occurring at a rate of 163.7 per 100 patient-years. There were no deaths during the study.

Autoantibodies Predict Treatment Response to Rituximab in Myositis

Written by Wayne Kuznar

The presence of myositis-associated autoantibodies is the strongest predictor of improvement in patients with adult and juvenile myositis treated with B-cell depletion.

Rohit Aggarwal, MD, MS, University of Pittsburgh, Pittsburgh, Pennsylvania, USA, described findings from the Rituximab for the Treatment of Refractory Adult and Juvenile Dermatomyositis (DM) and Adult Polymyositis (PM) [RIM] study, in which baseline clinical, laboratory, and serologic predictors of response were examined in rituximab-treated patients with refractory myositis, defined as failure of steroids and at least 1 other immunosuppressive agent. The study included 200 patients (76 with adult PM, 76 with adult DM, and 48 with juvenile DM) who were randomized to early (Weeks 0 and 1) or late (Weeks 8 or 9) rituximab with follow-up to 44 weeks.

The definition of improvement [Rider LG et al. *Arthritis Rheum* 2004] for this study is defined as improvement in 3 of any 6 core set measures (CSM) by ≥20%, with no more than 2 CSM worsening by ≥25% (excluding manual muscle testing) at 2 consecutive visits. The primary endpoint was to compare the time to improvement between the rituximab early and rituximab late groups. As reported previously [Oddis CV et al. *Arthritis Rheum* 2012], 83% of patients improved during the course of trial, with no difference in response between the 2 treatment groups.

For the current study, a list of the candidates' baseline clinical and laboratory parameters was compiled as potential predictor variables. All baseline variables were univariately assessed for association with time to improvement. All univariate variables that predicted or trended toward an association with time to improvement were then entered into a multivariate model. A final multivariate time-dependent Cox model was then created.

The final multivariate model consisted of global damage (high vs low) at Week 8 (p<0.01), disease subset (adult vs juvenile) at Week 8 (p<0.01), and myositis autoantibodies: Jo-1/other anti-syn (p<0.01) and Mi-2 (p<0.01) compared with no autoantibodies group. However, both global damage and disease subset washed out as significant predictive variables by Week 20, leaving anti-Jo-1 and anti-Mi-2 as the only significant markers of good prognosis and predictor of treatment response throughout the study.

In summary, the presence of juvenile DM and low global damage predicted a more rapid response than did adult onset myositis and high global damage, respectively. Although low global damage and juvenile DM were associated with more rapid improvement, there was no evidence that either predicts better prognosis if patients fail to improve early, said Dr. Aggarwal. The strongest predictor of improvement was the presence of myositis autoantibodies anti-Jo-1 and anti-Mi-2, which remained significant throughout the study period. In the future, myositis autoantibodies may serve as a prognostic marker and further investigation is needed for evaluation of anti-Jo-1 levels as a biomarker for myositis disease activity.

The Risk of Lymphoma in Patients Receiving Anti-TNF Therapy for RA: Results from the BSR Biologics Register

Written by Maria Vinall

Kimme L. Hyrich, MD, The University of Manchester, Manchester, United Kingdom, presented data from the British Society for Rheumatology Biologics Register, a large cohort study showing no evidence that antibody to tumor necrosis factor (anti-TNF) therapy increases the risk of lymphoma over the background risk associated with rheumatoid arthritis (RA).

The introduction of anti-TNF therapy almost 20 years ago led to a fundamental shift in the treatment paradigm for RA.