

Do flare-ups in systemic Disease Activity correlate to cervical deformity in patients with Rheumatoid Arthritis?

Following the introduction of biological DMARDs in Rheumatoid Arthritis (RA) treatment, cervical spine deformity seems to be less prevalent in those patients. It seems that this vast decline in patients with Atlanto-axial Subluxation (AAS), Subaxial Subluxation (SAS) or Vertical Subluxation (VS) is correlated to better control of systemic disease activity (DAS). However, results of systematic literature review and of an observational study on the correlation between mean DAS values and prevalence of cervical spine deformities could not establish a relation. The aim of the current study is to correlate the frequency of flare-ups in DAS to cervical spine deformity.

This research is observational and uses collected data of patients diagnosed with early RA and randomized to four treatment strategies aiming at optimizing medical treatment to lower systemic inflammation with 10 years of follow-up (BeSt Trial; medication is stopped if remission is accomplished, and restarted upon a flare). AAS and SAS were evaluated blindly by two observers on lateral cervical X-rays at 5 and 10 years of follow-up and systemic DAS was measured 41 times during a period of 10 years. Remission of RA is defined as a DAS lower than 1.6 during at least six consecutive months. A flare-up was defined as a DAS of 1.6 or higher after reaching remission.

272 RA patients were included and AAS was observed in 62 patients (23%) and SAS was present in 60 patients (22%). Cervical deformity (AAS and/or SAS) was observed in 108 patients. 84 (31%) patients were in remission at 10 years FU and 206 (75%) of patients reached remission at least once during 10 years FU. 193 of these patients demonstrated at least one flare-up, with a mean of 1.5 flares. Patients with cervical spine deformity at 10 years had less flare-ups (1.26) in DAS than patients without cervical spine deformity (1.58; 95% CI: 0.013-0.627).

It was observed that even though the BeSt Trial was designed to optimize treatment, 40% of the patients still developed RA-associated cervical spine deformity. Reaching remission after 10 years of treatment did not correlate to presence of cervical spine deformity, but the flare ups in DAS did appear to do so. However, remarkably, patients with more flares had less cervical deformity. This may be explained by the treatment regimen that anti-inflammatory medication is augmented upon measuring a systemic flare-up. This raises the hypothesis that RA medication treatment regimes should not be solely aimed at DAS values, as they are currently defined, in order to avoid cervical deformity in RA in the long term.