Biomarkers may predict the progression of spinal damage in patients with ankylosing spondylitis

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A new study presented today at EULAR 2012, the Annual Congress of the European League Against Rheumatism, has identified five biomarkers that may predict the progression of structural damage in the spine of patients with Ankylosing Spondylitis (AS) who are already at high risk of disease progression.

The German study analysed 64 patients from the German Spondyloarthritis Inception Cohort (GESPIC), due to the presence of radiographic spinal damage (syndesmophytes, the strongest predictor of further damage) and elevated blood level of c-reactive protein (CRP, a marker of systemic inflammation, another recently identified predictor of structural damage progression) at baseline. Patients were divided into two groups, Group I patients (progressors) had syndesmophytes at baseline and new syndesmophyte or syndesmophyte growth after two years. Group II patients (non-progressors) had syndesmophytes at baseline but without progression after two years.

The study found key inter-group differences between the progressors and non-progressors, who were at risk for progression due to the presence of syndesmophytes and elevated CRP at baseline. Those patients whose disease progressed had significantly higher serum levels of the biomarkers matrix metalloproteinase 3 (MMP3), bone-morphogenetic protein (BMP) 2, procollagen type II N-propeptide (PIINP) and vascular endothelial growth factor (VEGF) and lower levels

of the biomarker osteoprotegerin (OPG), indicating that these may predict the progression of structural damage. These data demonstrate that combinations of biomarkers with clinical parameters might help rheumatologists to identify AS patients with bad prognosis already at the early disease stage. Active and appropriate treatment of such patients my improve a long-term outcome and prevent or retard progression of spinal damage.

Dr. Denis Poddubnyy from Charité Universitätsmedizin Berlin, Germany and lead author of the study highlighted the importance of these results: "Knowing more about why certain patients have disease progression is hugely important. Not only will this help us stratify our patients due to risk but may, in the future, pave the way for more treatment options that target specific markers to be developed."

Patients were assessed via radiographs of the lumbar and cervical spine performed at baseline and after two years of follow up and independently scored by two trained readers. Serum levels of the following biomarkers were examined: CRP, MMP3, sclerostin, Dickkopf 1, periostin, BMP-2, BMP-7, OPG, VEGF, procollagen type I N-propeptide (PINP), PIINP, C-terminal crosslinked telopeptide of type II, bone alkaline phosphatise soluble receptor activator of kB ligand, cartilage oligomeric matrix protein and bone sialoprotein.

AS, together with rheumatoid arthritis and psoriatic arthritis, is one of the three most common forms of inflammatory arthritis. More common in men, AS mainly affects the spine but can also affect other joints, tendons and ligaments. AS describes the condition where some or all of the joints and bones of the spine fuse together. The overall prevalence of AS is 0.5-1% of the general population.

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