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New tool for prognosis and choice of therapy for rheumatoid arthritis

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In rheumatoid arthritis, antibodies are formed that affect the inflammation in the joints. In an article published today in the journal *Annals of the Rheumatic Diseases*, researchers at Uppsala University show that antibodies against the cartilage protein collagen II are associated with a good prognosis.

"Analysing these antibodies, in combination with other relevant antibodies, could be used for predicting prognosis and choosing therapy for rheumatoid arthritis patients," says Professor Johan Rönnelid who has led the study.

Rheumatoid arthritis (RA) is an inflammatory disease where the joints become stiff and swollen, and is associated with future joint destruction. This is caused by immune cells, which normally attack foreign organisms, instead react against the tissues in the joints, resulting in inflammation.

The symptoms in patients with RA are very variable but due to the pain and the effects on the joints the disease often becomes obstructing. The therapies that patients receive are given to dampen the inflammation and relieve the pain and to diminish future joint destruction.

In some RA patients antibodies are formed that target collagen II, an important protein in joint cartilage. These antibodies drive the inflammation early in the disease and the highest amounts of collagen antibodies have been detected at the time of diagnosis, after which the

levels decrease during the first year.

In the present paper researchers at the Department of Immunology, Genetics and Pathology, Uppsala University, in collaboration with colleagues at Karolinska Institutet, have followed a large group of RA patients during five years to see if there is a correlation between the collagen antibodies and disease development.

"We found that patients with collagen antibodies showed increased signs of inflammation during the first six months after diagnosis, after this there was no difference compared to patients without any collagen antibodies. We also discovered that the presence of collagen antibodies at the time of diagnosis was associated with a better prognosis, says Vivek Anand Manivel, PhD student at the Department of Immunology, Genetics and Pathology and first author of the article.

For patients with RA it is common to examine the presence of antibodies against proteins called citrullinated peptides. In the studied patient group it was found that the presence of such antibodies showed an opposite association to inflammation as compared to collagen antibodies. The presence of antibodies against citrullinated peptides was associated with increased inflammation late in the follow-up time and patients with these antibodies had a more severe disease course during the follow-up.

"In all, our findings suggest that a combined analysis of antibodies against collagen and antibodies against citrullinated peptides could be a new tool for predicting the disease course and perhaps also for choosing therapy in newly diagnosed RA patients," says professor Johan Rönnelid.

Provided by Uppsala University