First blood test for osteoarthritis could soon be available

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The first blood test for osteoarthritis could soon be developed, thanks to research by the University of Warwick.

The research findings could potentially lead to patients being tested for osteoarthritis and diagnosed several years before the onset of physical symptoms.

Conducted by the University's Medical School, the research identified a biomarker linked to both rheumatoid and osteoarthritis.

Whilst there are established tests for rheumatoid arthritis (RA), the newly identified biomarker could lead to one which can diagnose both rheumatoid arthritis and osteoarthritis (OA).

The research's focus was citrullinated proteins (CPs), a biomarker suspected to be present in blood of people with early stage rheumatoid arthritis. It had previously been established that patients with RA have antibodies to CPs, but it was not thought that this was the same for those with OA.

However, the Warwick researchers found for the first time increased CPs levels in both early-stage OA and RA.

They then produced an algorithm of three biomarkers, CPs, anti-CP antibodies along with, the bone-derived substance, hydroxyproline.

Using the algorithm the researchers found that with a single test they could potentially detect and discriminate between the major types of arthritis at the early stages, before joint damage has occurred.

Commenting on the findings, lead researcher, Dr Naila Rabbani said:

"This is a remarkable and unexpected finding. It could help bring early-stage and appropriate treatment for arthritis which gives the best chance of effective treatment".

Explaining the role of CPs in relation to both RA and OA and the importance of the algorithm to the research Dr Rabbani said:

"It has been long established that the autoimmunity of early-stage RA leads to antibodies to CPs, but the autoimmunity, and hence antibodies, are absent in early-stage OA. Using this knowledge and applying the algorithm of biomarkers we developed provides the basis to discriminate between these two major types of arthritis at an early stage".

The ability to discriminate between RA and OA could provide a number of benefits to patients, including early diagnosis. Dr Rabbani said:

"Detection of early stage-OA made the study very promising and we would have been satisfied with this only – but beyond this we also found we could detect and discriminate early-stage RA and other inflammatory joint diseases at the same.

"This discovery raises the potential of a blood test that can help diagnose both RA and OA several years before the onset of physical symptoms".

The research, Biomarkers of early stage osteoarthritis, rheumatoid arthritis and musculoskeletal health, is published by *Nature Scientific Reports*.

Provided by University of Warwick