

Risk of heart attack in rheumatoid arthritis patients almost halved by biologic drugs

11 January 2017, by Mike Addelman

A biologic drug which treats rheumatoid arthritis has been shown by new research to reduce the risk of heart attacks in arthritis sufferers by up to 40 per cent.

Patients with rheumatoid arthritis (RA) have a 60 per cent higher [risk](#) of heart attacks than the public, thought to be linked to the inflammation caused by the disease on affected joints. Reducing inflammation is a key goal of medical interventions, and several types of treatments are used.

Biologic drugs, such as tumour necrosis factor inhibitors (TNFi), work by reducing or eliminating certain proteins that cause inflammation. Synthetic disease modifying therapies (sDMARD) are used to slow down progression of rheumatoid arthritis and include drugs like methotrexate.

Current guidelines in the UK restrict the prescribing of TNFi in RA patients only to those with a sustained and highly active disease which has failed to respond to therapeutic doses of sDMARDs. Other patients with persistent inflammation which is at a more moderate level despite sDMARDs are not eligible. It is estimated that around 15% of patients with RA are receiving biologic therapies.

Researchers from the British Society for Rheumatology Biologics Register for Rheumatoid Arthritis (BSRBR-RA) at the Arthritis Research UK Centre for Epidemiology at The University of Manchester, studied two groups of RA patients to determine both [heart attack risk](#) and the severity of attack when occurred.

The first group, 11,200 strong, was for those receiving TNFi drugs, while remaining 3,058 patients were taking only sDMARDs.

Over three to five years of clinical and records follow-up, the researchers noted that risk of heart attacks was reduced by almost 40 per cent in

patients who received TNFi compared to those who had received sDMARD only.

Kimme Hyrich, a Professor in The University of Manchester's Division of Musculoskeletal & Dermatological Sciences, led the BSRBR-RA's research team said: "Rheumatoid arthritis patients already have to endure a debilitating condition, but to have an elevated risk of heart attacks because of their disease is a very worrying complication. In addition to managing risk factors such as high blood pressure and high cholesterol, achieving excellent control of inflammation can also reduce this risk.

"Our team has been able to show that this elevated risk can be reduced significantly by using biological drug therapies such as TNFi. The prescribing guidelines for TNFi therapies are very specific, and for good reason.

"However, the biologically plausible explanation for our findings – not only that TNFi reduces the inflammation associated with atherosclerosis but that it also may inhibit the accumulation and progression of plaque leading to fewer heart attacks – could be used to review existing guidelines and in particular, extend the use to patients with moderate levels of disease activity."

Another member of the research team, the majority of whose research is funded by the British Heart Foundation is University of Leeds Associate Professor of Cardiovascular Health Sciences and Honorary Consultant Cardiologist, Dr Chris Gale. He said: "This study, which linked the national registry of patients with rheumatoid arthritis with the national health attack registry, shows a striking relationship between the use of biological treatments for rheumatoid arthritis and reduced risk of heart attack.

"Clearly, further research is needed to investigate the cellular mechanisms behind this, but also to test

whether immunosuppressive agents may reduce the risk of heart attack in other high risk populations."

Stephen Simpson, Director of Research and Programmes at Arthritis Research UK, said: "This promising research could make a real difference to people with arthritis who live with the knowledge that they have an increased risk of having a heart attack. We are delighted that our funding is helping find ways to understand and reduce that risk and help give people the everyday freedom they need from the limits of arthritis."

Another research outcome related to the severity of heart attacks that did occur in the total study cohort. There was no difference in the severity of heart attacks among those who did suffer a myocardial infarction while on either drug therapy. So while TNFi treatments did reduce the risk of experiencing a heart attack, it showed no impact on the severity – and overall survivability – of heart attacks among RA patients.

The research team worked with the Myocardial Ischaemia National Audit Project, as mentioned by Professor Gale, to assist in grading heart attack severity and also the Health and Social Care Information Centre to access reporting of deaths.

Dr Mike Knapton, associate medical director at the British Heart Foundation, said:

"Patients with the painful and disabling condition rheumatoid arthritis also have a 60 to 70 per cent increased risk of a heart attack. This research is interesting, showing a clear association between receiving TNFi and risk of heart attack, however, it does not actually confirm that the biological drug causes the reduction in risk of heart attack.

"This research will inform future work, as we discover new ways to reduce heart attacks in people living with rheumatoid arthritis.

"In the meantime it is important that [patients](#) with [rheumatoid arthritis](#) should not only be offered treatment for their condition, but also offered management to reduce their risk of a [heart attack](#) – including managing blood pressure, cholesterol and lifestyle factors such as diet and exercise."

More information: Audrey S L Low et al. Relationship between exposure to tumour necrosis factor inhibitor therapy and incidence and severity of myocardial infarction in patients with rheumatoid arthritis, *Annals of the Rheumatic Diseases* (2017). [DOI: 10.1136/annrheumdis-2016-209784](https://doi.org/10.1136/annrheumdis-2016-209784)

Provided by University of Manchester

APA citation: Risk of heart attack in rheumatoid arthritis patients almost halved by biologic drugs (2017, January 11) retrieved 16 January 2018 from <https://medicalxpress.com/news/2017-01-heart-rheumatoid-arthritis-patients-halved.html>

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