“Can I stop my tablets Doc?” – predicting medication-free remission in rheumatoid arthritis.

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Introduction

- Rheumatoid arthritis is a common disease that affects around 400,000 adults in the UK and costs £4.75 billion annually to the UK economy.
- In RA, the immune system becomes confused and starts attacking the lining of joints causing pain, stiffness, swelling and permanent joint damage.
- Medicines which suppress this immune attack can achieve excellent arthritis control (called remission), but carry risks of severe side effects and require regular blood monitoring.
- Recent research has shown that up to half of patients with RA in remission are able to stop their arthritis medicines without a relapse of their arthritis.
- However, there is currently no way of reliably predicting who can safely stop their medication.

Aim and Design of Study

In our ongoing clinical trial, the ‘Biomarkers of Remission in Rheumatoid Arthritis (BioRRA) Study’, we aim to identify blood-borne markers that can predict medication-free remission in RA, including:

- The activity of a type of white blood cell known to be important in RA, called the ‘CD4-positive T cell’.
- Levels of inflammation-related proteins in the bloodstream.

Patient Outcomes

- 44 patients have stopped arthritis medications after 26 months of recruitment.
- 14 patients so far have achieved sustained medication-free remission at 6 months.
- 21 patients have experienced an arthritis flare, rapidly controlled by restarting original medication.

Laboratory Work

- CD4 T cells have been isolated from 114 blood samples with an average 98.9% purity (range 95.3 – 99.8%).
- The extent to which genes are switched on or off in these cells will be measured using a powerful modern technique called ‘RNA sequencing’ (results available February 2017).
- These results, together with measurements of inflammatory blood proteins, will be explored to see if they could have predicted the patients’ outcomes.

Summary

Up to half of patients with rheumatoid arthritis in remission may be able to stop their arthritis medications, but there is currently no way of identifying who can safely do this. In our ongoing research study, we are carefully monitoring patients who decide to stop their arthritis medications in order to identify blood tests that could help predict whose arthritis remains stable after stopping treatment. If successfully identified, such tests would help to avoid potentially unnecessary medication – reducing inconvenience and the risk of side-effects for patients, and reducing medication prescribing and monitoring costs for the health service.

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Image: Ultrasound image of the wrist joint demonstrating increased blood flow as seen in active arthritis. This finding excluded the patient from stopping their arthritis medication.

Image: Summary table outlining patient outcomes and laboratory work findings.