

## Advice Statement 007/17

September 2017

**In patients with clinically stable rheumatoid arthritis (clinical remission), can musculoskeletal ultrasound in addition to clinical examination detect or rule out inflammation that predicts subsequent joint damage to inform tapering and stopping treatment?**



This advice has been produced following completion of evidence note 70 by Healthcare Improvement Scotland, in response to an enquiry from the Scottish Society for Rheumatology

### Background

Rheumatoid arthritis is a chronic autoimmune condition causing widespread inflammation, particularly at the joints. This inflammation leads to chronic pain, stiffness and joint damage. Rheumatoid arthritis can develop at any age with peak incidence in people aged 40 to 60. With an increasing older population in Scotland the prevalence of rheumatoid arthritis is expected to increase.

Advances in treatments for rheumatoid arthritis have made clinical remission a realistic therapeutic goal, with up to 40% of patients achieving remission status within six months of initiating treatment. With remission rates increasing, and concerns over the safety and cost of long-term treatment, there is growing interest in tapering or stopping treatment in rheumatoid arthritis patients achieving clinical remission. Musculoskeletal ultrasound (MSUS) is a rapid, non-radioactive method of imaging which could potentially inform decisions on tapering or stopping treatment in rheumatoid arthritis patients in remission.

### Clinical effectiveness

- In a meta-analysis of moderate to good quality observational studies and moderate heterogeneity, synovitis detected on ultrasound was predictive of relapse and structural progression of disease in rheumatoid arthritis patients in clinical remission.
  - Synovitis detected on MSUS predicted long-term risk of relapse in a meta-analysis of four studies: odds ratio (OR) 3.2, 95% confidence interval (CI) 1.8 to 5.9,  $p < 0.001$ .
- A poorly reported randomised controlled trial and two small cohort studies suggest that MSUS could identify rheumatoid arthritis patients in clinical remission to inform tapering or stopping treatment, and MSUS could monitor patients to help predict relapse during treatment de-escalation.

### Safety

- No adverse events relating to the use of MSUS in patients with rheumatoid arthritis in clinical remission were identified.

### **Cost effectiveness**

- No cost-effectiveness evidence was identified relating to MSUS in people with rheumatoid arthritis in clinical remission.

### **Organisational issues**

- MSUS is currently available in all health boards in NHSScotland, although there is substantial variation in availability between rheumatology units.
- Ultrasound equipment costs are highly variable (£5,000 to £50,000) depending on suppliers, portability and model specification.
- Using MSUS to inform tapering or stopping treatment in rheumatoid arthritis patients in remission would require training staff in the use and interpretation of ultrasound images in clinic settings.

### **Conclusion**

- A meta-analysis based on seven observational studies suggests that MSUS is clinically effective in predicting relapse or progression of joint damage in rheumatoid arthritis patients in clinical remission.
- Evidence from three additional primary studies suggests that MSUS can effectively identify rheumatoid arthritis patients in clinical remission who are suitable for tapering or stopping treatment, and can be used to monitor these patients for relapse.
- No evidence was identified on the cost effectiveness of MSUS in rheumatoid arthritis patients in clinical remission.

### **Further research**

- Primary observational studies are required to establish the optimal set of joints for which assessment with ultrasound imaging identifies patients in clinical and imaging remission. Such studies should also consider the frequency of ultrasound monitoring of patients in clinical remission.
- Cost-effectiveness analyses with a UK perspective are required to evaluate use of MSUS to inform tapering and stopping treatment in patients with rheumatoid arthritis in clinical remission, with particular focus on quality of life and patient reported outcomes.

#### **Advice context:**

*The status of SHTG Advice Statements is 'required to consider'.*

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**Chair**  
**Scottish Health Technologies Group**



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