Use of MRI in Axial Spondyloarthritis at University Hospital Southampton: a Quality Improvement Project

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BACKGROUND

Suspected axial spondyloarthritis (axSpA) is a common presentation to the UHS Rheumatology department. For patients in whom X-ray fails to identify sacroiliitis, Magnetic Resonance Imaging (MRI) is recommended. The specific modality should be a Short T1 Inversion Recovery (STIR), T1 weighted sequence - whole spine and sacroiliac joints (SIJs) (NICE guideline NG65). Dedicated axSpA sequences take less scanning and reporting time than a full whole spine protocol (1.5h scanning time). Prior to this project, it was noted that some patients were either having unnecessary full spine protocol, and/or imaging of the SIJs was missed.

OBJECTIVES

To increase the percentage of patients with suspected axial spondyloarthropathy having the correct MRI protocol.

METHODS

This quality improvement project was based on cyclical audit using the 'Plan, Do, Study, Act' method.

Baseline audit

An audit of 122 MRIs requested from Nov 2018-Nov 2019 by rheumatology or gastroenterology for suspected axSpA was conducted in 2020 using the 'equest' search tool. 16% did not have the correct MRI sequence performed.

Intervention 1

A new MRI equest bundle was developed, including the SIJ and limited whole spine. The rheumatology and gastroenterology teams were informed of the change by email and educational meetings in June 2021.

Ongoing measurement

Audit data were extracted each month from 1 June 2021 to 21 January 2022. Several simple interventions were introduced during the process in a sequential manner. Data were collected following each intervention.

Intervention 2

A second, personalised email was sent in Sept 2021 to individuals, highlighting incorrect requests. Where appropriate, requests were amended.

Intervention 3

After it was identified that incorrect requests were made by rotating junior doctors, the 3rd intervention was to update the junior doctor induction booklet with the new protocol.

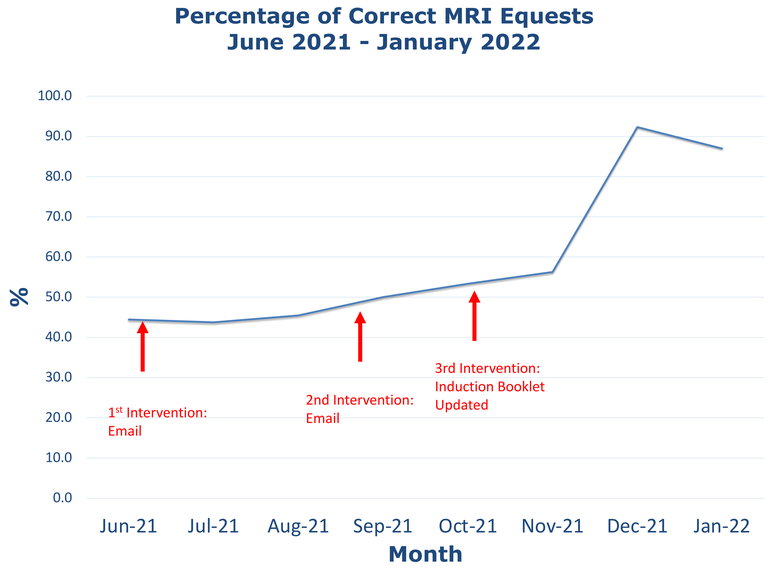
RESULTS

From 1st Jun 2021 - 31st Jan 2022, 126 MRI requests were made. Following the introduction of the new equest bundle, in June 2021 and July 2021 respectively, 44.4% and 43.8% of requests were correct. After further interventions, compliance increased monthly.

After Intervention 1 compliance increased by approximately 5% each month with 45.5% of requests correct in Aug 2021 and 50% in Sept 2021. It was felt that 50% compliance was not adequate. We speculated that using a personalised approach for each requestor may aid learning.

After Intervention 2, compliance increased, with 53.3% of requests in October 2021 correct. However compliance was still much lower than our target (100%).

After Intervention 3 (induction document) compliance increased to 56.3% (Nov 2021), 92.3% (Dec 2021), 87% (Jan 2022).



Conclusions

Our project has increased the number of correct MRI requests for patients with suspected axSpA and reduced the use of radiology resources (scanning and reporting time). It is unclear why there was such an improvement from Nov 2021 to Dec 2021 but this may relate to a second service improvement project (a new axSpA referral pathway) where patients are triaged to one consultant's clinic, leading to more consistent imaging requests.

There are several limitations to this project: requests for inpatients were not included; there may have been undocumented reasons for requests not following the protocol; direct outcomes such as resources saved were not measured. No qualitative data was collected on clinician experience of using the equest bundle. Furthermore, the recent data are confined to requests by rheumatology not specialties such as gastroenterology and spinal services.

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