Screening for axial SpA in HLA-B27 associated uveitis: an audit of patients presenting to the ophthalmology clinic

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Background

Axial spondylarthritis (axial SpA) is a debilitating chronic inflammatory arthritis commonly presenting as back pain.[1] It has been associated with Human Leukocyte Antigen B27 (HLA-B27)[2] and other inflammatory autoimmune conditions such as Anterior Uveitis (AU).[3]

In the UK, patients received a delayed diagnosis of axial SpA 8.5 years from the initial onset of symptoms,[4] as compared to the international mean of 6.7 years.[5] Diagnostic delays pose multiple challenges for patients and governments alike:

- Cost to the UK economy of £18.7 billion annually[5]
- A 1-year reduction in diagnostic delay could potentially save an estimated £167,000 per person.[5]
- Delayed diagnosis results in functional impairment and worsening quality of life.[6]

For patients presenting to primary care with anterior uveitis, the National Axial Spondylarthritis Society (NASS) has also created a symptom checker for inflammatory arthritis with the abbreviations "SPINE", as shown in Figure 1.

Symptoms starting slowly
Pain in the lower back
Improves with movement
Night time waking
Early onset (under 40)

Figure 1: Figure detailing NASS "SPINE" screening criteria for Axial SpA in patients presenting with anterior uveitis

Objective

We aim to identify if patients that presented to the ophthalmology clinic with HLA B27 associated anterior uveitis were screened for by clinicians utilising the NASS symptom checker tool as well as any significant patient demographics.

Methods

We planned our quality improvement project according to the Plan, Do, Study Act (PDSA) Cycle for improvement.

- We wanted to audit if patients presenting with HLA-B27 associated AU were screened for axial SpA utilising the NASS Symptom checker
- We also wanted to identify any significant demographic correlations
- We planned to carry out interventions where required and reaudit the effect of the interventions afterwards

- An initial audit was carried out on patients presenting to the ophthalmology clinic with a diagnosis of HLA B27 associated Anterior Uveitis from July 2023 to January 2024 on MediSight.
- We identified if patients were screened for axial SpA as well as the number of the SPINE symptoms screened for.

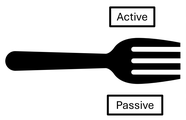


- Following analysis of the initial audit, we carried out multi-stage intervention across regions, using approaches like presentations, educational sessions for clinicians and allied health professionals, as well as posters in key clinical areas.
- Upon completion of the intervention, we carried out a re-audit on patients that presented with HLA-B27 associated AU from October 2024 to April 2025 to determine the effect of the intervention.

- Patient details were anonymised and demographics, past medical history and referred pathways were extracted and analysed for any significant correlations.
- We analysed the clinical extent of screening for axial SpA, as well as identified potential avenues for intervention

Figure 2: Cycle diagram detailing our PDSA cycle for the quality improvement audit

Multi pronged intervention



- Regional abstract presentation to Ophthalmology colleagues
- Cross disciplinary abstract presentation to Allied health professionals
- Cross specialty poster presentation to Rheumatology colleagues
- Posters in key clinical areas
- Posters in St Paul's Eye Emergency Department (SPEED)

Figure 3: Diagram detailing out multi pronged intervention to increase clinical awareness and screening for axial SpA in patients with HLA-B27 AU

Results

Initial Audit

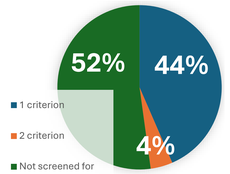


Figure 4: Pie chart visualising patients screened for axial SpA

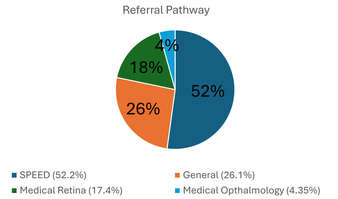


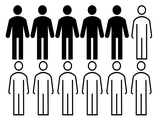
Figure 5: Pie chart detailing initial referral pathway of patients

39.1% Of patients had a history of Autoimmune disease

43.5% Of patients had a previous episode of back pain/ arthritis

Figure 6: Diagram detailing demographic factors of note

Re-audit



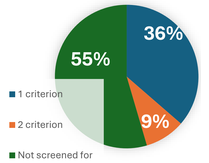


Figure 7: Visual representation of patients screened for axial SpA

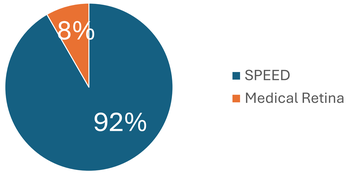


Figure 8: Pie chart detailing initial referral pathway of patients

Discussion

Initial Audit

Our initial audit (July 2023-January 2024) of 23 patients with anterior uveitis eligible for axial SpA screening (HLA-B27 positive without prior axial SpA diagnosis) revealed that there was documented screening for at least one criterion under the NASS SPINE symptom checker for 11 patients (47.8%). 43.5% of all patients were screened for pain in the lower back. This showed that while there was some clinical recognition for screening for axial SpA, further education was required to improve the consistency and quality of screening.

Re-audit

Following the implementation of the interventions stated, our reaudit (October 2024-April 2025) identified 12 individuals eligible for axial SpA screening. Documented screening for at least one of the criterion occurred in 5 of these 12 patients (41.7%). This screening ratio is numerically lower than that from the previous audit cycle. However, a key limitation of the re-audit cycle is the very small number of eligible patients (n=12). It is important to understand that with such small denominators, percentages can fluctuate significantly with only minor changes in absolute numbers. Therefore, while we note the lower figure, we must be cautious about drawing firm conclusions regarding a definite trend based solely on this cycle due to the sample size limitation. Positively, when screening was documented, questions about inflammatory back pain were included for all 5 patients screened, aligning with key diagnostic criteria.

Conclusion

These findings highlight the ongoing need to reinforce clinical pathways for SpA screening in uveitis patients and ensuring consistent documentation. Further cycles with larger patient numbers would be needed to establish a clearer trend in screening rates. Recommendations focus on continued education and potentially refining documentation prompts within the electronic patient record.

References:

1. Navarro-Compán V, Sepriano A, El-Zorkany B, et al. Axial spondyloarthritis. *Ann Rheum Dis* 2021;80(12):1511-21. doi: 10.1136/annrheumdis-2021-221035 [published Online First: 2021/10/08]
2. Sieper J, Poddubnyy D. Axial spondyloarthritis. *Lancet* 2017;390(10089):73-84. doi: 10.1016/s0140-6736(16)31591-4 [published Online First: 2017/01/24]
3. Wakefield D, Yates W, Amjadi S, et al. HLA-B27 Anterior Uveitis: Immunology and Immunopathology. *Ocul Immunol Inflamm* 2016;24(4):450-9. doi: 10.3109/09273948.2016.1158283 [published Online First: 2016/06/02]
4. Sykes MP, Doll H, Sengupta R, et al. Delay to diagnosis in axial spondyloarthritis: are we improving in the UK? *Rheumatology (Oxford)* 2015;54(12):2283-4. doi: 10.1093/rheumatology/kev288 [published Online First: 2015/08/19]
5. Howard Wilsher S, Afolabi, O., Mishra, M., Xydopoulos, G., Zanghelini, F. and Fordham, R. The Economic Cost of Delayed Diagnosis of Axial Spondyloarthritis in the UK. London: National Axial Spondyloarthritis Society, 2022.
6. Yi E, Ahuja A, Rajput T, et al. Clinical, Economic, and Humanistic Burden Associated With Delayed Diagnosis of Axial Spondyloarthritis: A Systematic Review. *Rheumatol Ther* 2020;7(1):65-87. doi: 10.1007/s40744-020-00194-8 [published Online First: 2020/01/23]