Conclusion: Adalimumab drug levels > 3mg/L is a protective factor against treatment interruption.

Etanercept previous treatment was a risk factor for treatment interruption.

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FRI0296

AN ALTERNATIVE APPROACH TO SPONDYLOARTHRITIS TREATMENT: PAMIDRONATE CASE SERIES

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Background: Spondyloarthritis (SpA) is a common group of chronic inflammatory diseases with substantial morbidity seen in rheumatology clinics. Its standardized treatment includes non-steroidal anti-inflammatory drugs (NSAIDs), TNF-alpha inhibitors and IL-17 inhibitors. However, some patients remain refractory to conventional treatments and these treatments are contraindicated in malignancies and infections, which indicates the need for new therapeutic approaches. Pamidronate, a bisphosphonate with antiosteoclastic action, has been found useful in a few studies (1-2).

Objectives: The aim is to evaluate the effectiveness and safety of pamidronate treatment in SpA in a single tertiary center.

Methods: SpA patients who were treated with pamidronate due to lack of response to standard treatment or in patients where standard treatment is contraindicated in 2014-2019 are evaluated retrospectively. Patients' files were evaluated for the indications, efficacy and the side effects of pamidronate as well as for the clinical and demographic features. Pamidronate intravenous dose was 90 mg/month.

Patient ID#	Age	Sex	Comorbidities	Previous treatments	Duration of pamidronate treatment(mo)	PGAS before treatment	PGAS after treatment
1	48	M	OP, FMF	NSAID, IFX, ETN	6	9	1
2	66	F	OP, Rectum cancer	NSAID, SSZ	28	10	4
3	36	M	Gastric cancer	NSAID, SSZ, IFX	10	10	10
4	57	M	CAD, IBD	NSAID, SSZ, MTX, ADA, CZP	2	5	4
5	50	M	none	NSAID, IFX	6	9	2
6	69	M	DM, HT, CMD, PsO	NSAID, SSZ	37	9	1
7	62	M	Bladder cancer	NSAID	4	9	4
8	40	M	none	NSAID, GOL, ETN	2	6	6
9	46	M	none	NSAID, SSZ, MTX, ADA, CZP, IFX, ETN, ADA, GOL	8	5	2
10	40	M	none	NSAID, SSZ, ADA, GOL, CZP, ETN, IFX	3	8	6
11	58	F	SLE	NSAID, HCQ, MTX	3	8	7

Table. F: female M: male OP: osteopenia, FMF: familial Mediterranean fever, CAD: coronary artery disease, IBD: inflammatory bowel disease, DM: diabetes mellitus, HT: hypertension, CMD: chronic myeloproliferative disorder, PsO: psoriasis, SLE: systemic lupus erythematosus IFX: infliximab, ETN: etanercept, SSZ: sulfasalazine, NSAID: non-steroidal anti-inflammatory drug, MTX: methotrexate, ADA: adalimumab, CZP: certolizumab, GOL: golimumab, HCQ: hydroxychloroquine, PGAS: Patient Global Assessment Score

Results: There were 11 patients (9 male and 2 female). 4 patients were diagnosed as non-radiographic SpA. The mean disease duration was 29±12 years (range 12-49). The comorbidities of the patients included diabetes mellitus and hypertension in 1 patient, coronary artery disease in 1 patient, psoriasis in 1 patient, inflammatory bowel disease in 1 patient, Familial Mediterranean fever in 1 patient, systemic lupus erythematosus in 1 patient, and osteopenia in 2 patients. 3 of the patients had malignancies (bladder, rectum and stomach carcinomas) and 1 patient had chronic myeloproliferative disorder. 4 patients could never use the TNF-alpha inhibitors (1 rectum cancer, 1 bladder cancer, 1 systemic lupus erythematosus, 1 essential thrombocytemia). The median duration of pamidronate use was 6 (interquartile range 3-10). Mean Patient Global

Assessment Score (PGAS) was 8±2 before the pamidronate treatment and 4±3 after the treatment (p<0.001). The treatment of 6 patients was terminated due to inadequate response which is shown in Table. One patient died from bladder carcinoma during follow-up.

Conclusion: In SpA patients, with biological agents (anti-TNF, IL-17) being contraindicated due to malignancies and tuberculosis in some patients, alternative treatment methods such as pamidronate should be considered bearing in mind the results of our study showing the effectiveness and safety of it.

References:

- [1] Maksymowych WP et al. A six-month randomized, controlled, double-blind, dose-response comparison of intravenous pamidronate (60mg versus 10mg) in the treatment of nonsteroidal antiinflammatory drug-refractory ankylosing spondylitis. *Arthritis Rheum* 2002;46:766-783.
- [2] Haibel H et al. Treatment of active ankylosing spondylitis with pamidronate. *Rheumatology*, Volume 42, Issue 8, August 2003, 1018-1020.

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FRI0297

COMPARISON OF EFFICACY OF SECUKINUMAB VS ANTI-TNF AS SECOND LINE BIOLOGIC THERAPY IN AXIAL SPONDYLOARTHROPATHY BASED ON BASDAI RESPONSE IN AN OBSERVATIONAL STUDY

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Background: Modern biologic therapies have demonstrated encouraging results in the treatment of axial spondylarthropathy (AxSpA). The benefits of interleukin-17 inhibitors (IL-17i), as first and second line therapies, are well established [1, 2]. A systematic literature review by Navarro-Compán has shown some benefit of second line therapies using both anti-tumour necrosis factor (anti-TNF) and IL-17i [3]. To our knowledge, there are currently no studies that have directly compared which pathway has a better overall outcome. This is therefore the first observational study directly comparing both treatment arms after anti-TNF had been administered as first line therapy.

Objectives: To investigate which second line therapy is superior, anti TNF or IL-17i (secukinumab), in patients with AxSpA, that have failed first line anti-TNF therapy.

Methods: Patient data was extracted from the Whipps Cross Hospital Rheumatology biologics registry database. All patients selected were required to have a diagnosis of AxSpA on magnetic resonance imaging (MRI). The patient cohort that was selected had previously been treated with anti-TNF as a first line therapy and were being considered for second line therapy with either anti-TNF or IL-17i. Bath Ankylosing Spondylitis Disease Activity Index (BASDAI) scores were recorded at 3, 6 and 12 months to assess treatment response. The unpaired t-test was used to assess the significance between the treatment groups and were analysed using the R statistical package.

Results: Seventy patients were identified for this study of which, 57% (46/70) were male and 37% (26/70) were female. The age ranged from 30-97 years, with an average age of 72. The HLA-B27 gene association in this cohort was 71% (50/70). Three patients out of the cohort had psoriatic spondylarthropathy and the remaining had isolated AxSpA. There were an equal number of secukinumab and anti-TNF patients. The anti-TNF patients were subdivided into their respective anti-TNF drug (listed in Table 1).

Table 1. Frequency of individual anti-TNF drugs used in this cohort.

Anti-TNF drug	Frequency used
Adalimumab	9/35
Certolizumab	8/35
Etanercept	17/35
Golimumab	1/35

This study revealed that the patients experienced an average of a 52% reduction in the BASDAI score after 6 months of anti-TNF treatment compared to only a 6% reduction in patients on secukinumab (P 0.009). However, the disease activity improvement at 12 months was not sustained in the anti-TNF group and at this stage there was no difference between the groups. Overall both treatment groups

showed an average reduction in the BASDAI score by more than 30% at each 3 monthly interval.

Figure 1. BASDAI percentage reduction at 3 monthly intervals between the two second line treatment groups using anti-TNF and Secukinumab.

Conclusion: A significant difference could not be demonstrated between the anti-TNF and secukinumab groups in this observational cohort. Interestingly, at 6 months, anti-TNF demonstrated better outcomes according to BASDAI scores than Secukinumab but this efficacy was lost at 12 months. It was difficult to interpret these isolated results without further testing, as this is a small non-randomised study. We observed similar outcomes to the Navarro-Compán review where there was a low percentage change in the BASDAI improvement in patients on second line therapy when compared to first line treatment BASDAI scores. Therefore, exploring the mechanism for the reduction in the BASDAI response would be an interesting future study. Moreover, to fully understand these results, randomised controlled studies would need to be conducted.

References:

- [1] Baeten et al. NEJM 2015.
- [2] van der Heijde et al. ARD 2018.
- [3] Navarro-Compán et al. RMD Open 2017.

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FRIDAY, 05 JUNE 2020

Spondyloarthritis - clinical aspects (other than treatment)

FRI0298

ASAS MODIFICATION OF THE BERLIN ALGORITHM AND THE DUET ALGORITHM FOR DIAGNOSING AXIAL SPONDYLOARTHRITIS: RESULTS FROM THE SCREENING IN AXIAL SPONDYLOARTHRITIS FOR PSORIASIS, IRITIS, AND COLITIS COHORT

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Background: Patients presenting with back pain and psoriasis, iritis, or colitis, represent a high-risk population for the presence of axial spondyloarthritis (axSpA). The Dublin Evaluation Tool (DUET)¹, the Berlin algorithm², and the ASAS modification of this algorithm³ are recommended referral strategies aimed at early diagnosis of axSpA. DUET was developed for patients presenting with AAU. Validation of these algorithms in inception cohorts is limited.

Objectives: 1. To assess the performance of referral algorithms for diagnosis of axSpA when tested against the final local rheumatologist diagnosis in an inception cohort of patients presenting with undiagnosed back pain and extra-articular manifestations. 2. To determine whether different criteria for inflammatory back pain (IBP) impact the performance of the algorithms.

Methods: The multicenter Screening for Axial Spondyloarthritis in Psoriasis, Iritis, and Colitis (SASPIC) Study at 11 sites is aimed at early detection of axial SpA in patients presenting with undiagnosed back pain to the rheumatologist. Consecutive patients ≤45 years of age with ≥3 months undiagnosed back pain with any one of psoriasis, acute anterior uveitis (AAU), or colitis diagnosed by the relevant specialist undergo routine clinical evaluation by a rheumatologist for axial SpA. The rheumatologist determines the presence or absence of axial SpA at 3 consecutive stages: 1. After the clinical evaluation; 2. After the results of labs (B27, CRP) and radiography; 3. After the results of MRI evaluation. Final diagnosis by the rheumatologist was used as external standard to test the performance of the algorithms. We tested the following criteria for IBP in the algorithm: ASAS, Berlin, rheumatologist global for likelihood of IBP >5 (0-10 scale), and DUET algorithm in AAU patients.

Results: A total of 246 patients were recruited, 73 presented with iritis, 46 with psoriasis, and 127 with colitis, 47.6% were diagnosed with axSpA. The diagnosis of axSpA was established in 45.7%, 61.6%, and 40.2% of patients with psoriasis, AAU, and IBD, respectively. The performance of the ASAS-modification of the Berlin algorithm was superior to the original algorithm as reported previously³, primarily for enhanced sensitivity, and this was observed irrespective of the criteria used to define IBP (Table 1). Conversely, the performance of the Duet algorithm in the subset of patients with AAU was substantially worse than previously reported¹.

Conclusion: The ASAS modification of the Berlin algorithm is the preferred referral strategy for patients presenting with undiagnosed back pain to the rheumatologist.

References:

- [1] Haroon M, et al. Ann Rheum Dis 2015; 74: 1990-5
- [2] Poddubnyy D, et al. J Rheumatol 2011; 38: 2452-60
- [3] Van den Berg R, et al. Ann Rheum Dis 2013;72:1646-53

Algorithm	Sensitivity (%)	Specificity (%)	Correct diagnosis (%)	False negative (%)	False positive (%)
Original Berlin	65.3	76.6	71.1	16.7	12.2
(ASAS criteria for IBP)					
Original Berlin	64.4	76.6	70.7	17.1	12.2
(Berlin criteria for IBP)					
Original Berlin	67.8	78.1	73.2	15.4	11.4
(IBP global >5)					
ASAS Modification of Berlin algorithm (ASAS criteria for IBP)	73.7	75.8	74.8	12.6	12.6
ASAS Modification of Berlin algorithm (Berlin criteria for IBP)	73.7	75.0	74.4	12.6	13.0
ASAS Modification of Berlin algorithm (IBP global >5)	76.3	77.3	76.8	11.4	11.8
DUET	84.4	50.0	71.2	9.6	19.2

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FRI0299

EVALUATION OF ENTHESITIS INDICES AND RESPONSE TO BDARD THERAPY IN PORTUGUESE PATIENTS WITH SPONDYLOARTHRITIS

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