of cases, adalimumab in 14% of cases, certolizumab pegol 13%, infliximab 6%, tocilizumab 6% and rituximab in 7% of cases, with an average DAS28 at baseline 6.01 ± 0.89 [5.37 – 6.50]. Association with methotrexate was observed in 59.6% case and with corticosteroid in 57.2% case. Drug persistency rate at 12 months was 85.8%; at 24 months, 69.9%; at 36 months, 60.6% and at 48 months, 55.9%. Survival was on average 41.7 months with 95% CI (39.47 – 43.91). The presence of rheumatoid factors, the co-prescription of methotrexate as well as good initial therapeutic response were predictor of a better survival of biologicals at a statistically significant level $p < 0.01$ (Hazard Ratios for pursuit of biotherapy were respectively 1.79, 1.91 and 2.3). The use of glucocorticoids was a negative predictor of retention (Hazard Ratio for therapy pursuit was 0.47 $p < 0.001$). This first biotherapy was stopped in 39% of cases and ineffectiveness was the major reason of interruption (52.7%). The anti-TNF α cycling was the most adopted therapeutic strategy with 64.6% of cases. The survival rates of the second biotherapy at 12, 24 and 36 months were 91%, 76.4% and 72.1%, respectively.

Conclusion: Our study provides information about biotherapy prescription practices in Tunisia and their effectiveness in “real life”. It informs us about the use of these new therapies in our country and has shown an efficacy and a tolerance profile close to those reported in international registers.

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AB0321

EFFECT ON RETENTION RATES OF A NOVEL AUTOINJECTOR E-DEVICE IMPLEMENTED IN CLINICAL PRACTICE IN PATIENTS WITH CHRONIC ARTHRITIS TREATED WITH CERTOLIZUMAB PEGOL: A MULTI-CENTRE STUDY

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Background: Anti-tumour necrosis factor (anti-TNF) adherence is suboptimal and impacted by multiple psychological, practical and physical barriers, such as patient needle phobia, lack of confidence in self-administration skills and forgetting injection dates (1,2). ava®, a reusable electro-mechanical self-injection device (e-Device) developed for certolizumab pegol (CZP) administration, aims to overcome some of these barriers.

Objectives: The objective of this study was to explore the clinical retention rate of an e-Device aimed at empowering chronic arthritis patients using CZP.

Methods: Patients treated with CZP were recruited from the Netherlands, Denmark and Sweden through rheumatology clinics to evaluate patient experience with the e-Device. Patients were adults (aged between 18 and 85 years) with RA, axSpA or PsA. After being trained on how to use the e-Device, patients administered 3 consecutive self-injections on their own. Descriptive statistics for baseline characteristics, retention rates and reasons for withdrawal were assessed. Data on physical function (HAQ) are reported for Denmark and Sweden only due to lack of data from Holland.

Figure 1. Overall retention rate and reasons for withdrawal

Results: 59 patients participated in the study (Netherlands: 25; Denmark: 15; Sweden: 19). Most patients were women (71%), with a mean age of 55 years [16.2] and an average disease duration of 12 years [8.8]. A total of 42% and 39% had previously been treated with csDMARD(s) or were currently on csDMARD(s), respectively. 12% of the patients were bio-naïve. Only 6 (10%) patients started CZP de novo. The remaining switched device. The most used administration form prior to entering the study was pre-filled syringe (78%). At the time of inclusion, patients were mildly disabled with an average HAQ score of 0.5 [0.6] and a moderate VAS-pain score of 32 [25.1] (data not shown).

The overall retention rate was 42% after 52 weeks, declining to 38% after 104 weeks (Figure 1). A sharp decline is seen at week 8 which coincides with the end of the project phase. Between week 32 and 112 only 4 patients withdrew from the study (Figure 1). The primary reason for withdrawal was patient's request (Figure 1). Dropout rates due to lack of efficacy or adverse events were as expected compared to other cohorts of biologic therapies. When stratified by country the analysis showed no significant differences between countries (data not shown).

Conclusion: An initial large drop-out was evident within the first 8 weeks, whereas almost no drop-out was seen in the extension phase (after week 8). The reasons for withdrawal was primarily patient request. Thus, the injection experience must be tailored carefully when selecting patients for new autoinjector e-Devices to enhance retention on device and patient satisfaction. Not one device fits all.

References:

- [1] Maniadakis N, Toth E, Schiff M, et al. A Targeted Literature Review Examining Biologic Therapy Compliance and Persistence in Chronic Inflammatory Diseases to Identify the Associated Unmet Needs, Driving Factors, and Consequences. *Adv Ther* 2018;35:1333-1335.
- [2] Lopez-Gonzalez R, Leon L, Loza E, et al. Adherence to biologic therapies and associated factors in rheumatoid arthritis, spondyloarthritis and psoriatic arthritis: a systematic literature review. *Clin Exp Rheumatol* 2015;33:559-69.

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AB0322

LESSONS LEARNED FROM THE PAST THAT SHOULD IMPROVE THE FUTURE: 18 YEARS OF EXPERIENCE WITH BIOLOGIC THERAPIES IN RHEUMATOID ARTHRITIS IN A TERTIARY RHEUMATOLOGY CENTER IN ROMANIA

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Background: Rheumatoid arthritis (RA) is a chronic inflammatory disease, which affects approximately 1% of the population. Although diagnostic, monitoring and treatment strategies have improved noticeably over the last decades, allowing an early and sustained clinical and radiological remission, both direct and indirect costs of treatment and disease still create an economic burden for patients and society. The last few years have brought many therapeutic options and knowledge about them, which has led to the 2019 updated EULAR recommendations for the management of RA (1).

Objectives: This study aimed to evaluate the trends in prescribing of biologic therapies in RA over time, the factors that influenced them and the persistence of patients on these treatments.

Methods: In this retrospective study we evaluated patients with RA treated with biologic therapies in the last 18 years, who presented for routine clinical and biological evaluation, performed according to the standard of care principles in RA.

Results: 244 patients were enrolled in this study. Baseline characteristics are presented in Table 1.

Table 1. Baseline characteristics of the 244 patients evaluated

Parameters	RA patients (n=244)
Gender (Female); n(%)	202 (82,8%)
Age (Mean±SD)	61,09±11,86
Age at RA onset (Mean±SD)	46,16±13,12
Disease duration (years); (Mean±SD)	14,93 ±8,78
Number of biologic therapies received; n(%)	
1 line	244 (100%)
2 lines	152 (62,29%)
3 lines	31 (12,70%)
4 lines	2 (0,81%)
5 lines	1 (0,40%)

There is a significant decrease in the persistence period on the first biological therapy after 2010 (60.67 ± 50.53 months before 2010 vs. 37.02 ± 34.92 months after 2010, $p < 0.001$, 95% CI = -34,464 - -12,838).

There is a significant increase in the period from diagnosis to the initiation of biological therapy after 2012 (6.88 ± 6.75 years before 2012 vs. 9.25 ± 9.33 years after 2012, $p < 0.001$, 95% CI = 0.341-4.406).

Overall, regardless of the therapeutic line in which they were used, persistence on anti-CD20 (44.89 ± 43.02 months (mean±SD)) therapies was significantly higher than that on TNFi (81.85 ± 42.17 months (mean±SD)) ($p < 0.001$, CI=27.806-46.129). (Image 1)

Figure 1. Image 1. Persistence on TNFi and anti CD20 therapies

Conclusion: The two trends observed in this study: the decrease in persistence on biologic therapy, in 2010, and the increase of the period between RA diagnosis and the initiation of a biologic therapy, in 2012, were generated by the appearance of new molecules, thus reducing the boundaries generated by the previously limited number of options, and by the major changes in national health insurance system regulations.

Anti-CD20 therapy proved to be non-inferior to TNFi therapies regarding persistence on therapy and did not result in higher adverse events than TNFi, justifying the inclusion of RTX therapy as one of the biological therapies used in the first line in 2019 RA treatment recommendations.

A limitation of this study is the small number of patients who received other therapies (JAKi, T cell co-stimulation blockers, anti IL6), which did not allow a correct analysis of other therapeutic lines compared to those previously mentioned.

References:

- [1] Smolen JS, et al. Ann Rheum Dis 2020;0:1–15. doi:10.1136/annrheumdis-2019-216655

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AB0323

DEMYELINATING DISEASE AFTER EXPOSURE TO TUMOR NECROSIS FACTOR ALPHA INHIBITORS (TNFi): LONG-TERM OUTCOMES FROM A SINGLE CENTER

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Background: TNFi are effective treatments for multiple immune-mediated inflammatory diseases. There are five TNFi's approved for clinical use. Despite

their acceptable safety/efficacy profile, serious side effects have been reported, including central and peripheral nervous system demyelinating diseases (DD).¹ Causation remains controversial and there is a paucity of data on the long-term outcomes in these patients.

Objectives: To assess long term outcomes in patients with DD related to TNFi use.

Methods: We conducted a database search and then retrospective chart review to identify patients with potential TNFi related neurologic events at a university medical center between 2006 and 2016. 15 total patients (13 living, 2 deceased) were ultimately identified. Six were able to be contacted by phone to assess their current status. Four of these patients were able to attend a one time-visit to complete a neurologic assessment and musculoskeletal examination. Interviews over the phone or in person were used to complete multiple assessments for disability.

Results: 15 patients with DD were identified from among 4600 patients on TNFi's for various indications (0.3%). Mean duration of follow-up was 6.8 years. Neurologic symptoms occurred >12 months after starting a TNFi in 8/15 (53%) patients. 47% of patients had been exposed to two or more TNFi's. 40% received some form of treatment for their DD, including MS disease modifying therapies, IVIG and immunosuppression. No patients experienced worsening DD after stopping their TNFi except for one patient with MS who experienced a repeat flare. Two of three patients diagnosed with MS after TNFi had a first degree relative with MS. 3/15 (20%) experienced complete resolution of their symptoms. Two patients were deceased; cause of death was thought not directly related to DD on chart review.

Conclusion: Prevalence of DD after TNFi exposure was low at our center, consistent with previously published data. Presentations included both central and peripheral demyelinating events. With the exception of one patient who developed MS, withdrawal of TNFi's appeared to halt further progression or development of new neurologic symptoms. It is unclear if treatment for DD is beneficial after diagnosis and TNFi withdrawal.

Patient Data:

Age	Sex	Indication	TNFi at time of event	Neurologic Presentation/ Diagnosis	Duration of follow-up, years	DD status at last follow-up
32	F	JIA	E	Ataxia, paresthesias, dysarthria, nystagmus, tetraparesis	11	Persistent despite tx
58	M	PsA	G	Paresthesias	9	Improved no tx
38	F	AS	A	Numbness and weakness	5	Resolved, no tx
54	M	PsA	E	Paresthesias, cognitive impairment	10	Persistent, no tx
51	F	AS	A	Incontinence, paresthesias	10	Persistent, no tx
26	F	Crohn's	A	Optic neuritis	11	Resolved, no tx
49	M	PsA	A	Multifocal motor neuropathy	3	Resolved after tx
37	M	PsA	A	Weakness, spasticity, paresthesias, optic neuritis	9	Persistent, on tx
33	F	PsA	A	Optic neuritis, transverse myelitis (MS)	5	Flared, no tx
59	F	PsA	E	Transverse myelitis (MS)	9	Deceased
45	F	AS	I	Transverse myelitis	7	Deceased
70	M	RA	A	CIDP	1	Received treatment but lost to follow-up
34	F	Crohn's	A	Small fiber neuropathy	11	Persistent, no tx
62	F	RA	E	Optic neuritis	<1	Lost to follow-up after initial visit
42	M	Uveitis, retinal vasculitis	A	Paresthesias (MS)	1	Persistent, on tx

Juvenile idiopathic arthritis (JIA), Psoriatic arthritis (PsA), Ankylosing spondylitis (AS), Rheumatoid Arthritis (RA)

Adalimumab (A), Etanercept (E), Golimumab (G), Infliximab (I)

Treatment (tx)

References:

- [1] Kemanetzoglou E, Andreadou E. CNS Demyelination with TNF-α Blockers. *Curr Neurol Neurosci Rep.* 2017;17(4):36. doi:10.1007/s11910-017-0742-1

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