SAT0203 OPTIMIZATION OF BIOLOGIC TAPERING USING ULTRASOUND IN RA PATIENTS

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Background: Optimal treatment using Treat 2 Target regimen has reduced morbidity and mortality rates in RA patients. However the use of biological therapies is expensive and a huge financial burden on Health budgets.

Current guidelines suggest to consider tapering biological therapies in patients with sustained low disease activity¹.

There is a risk of overtreatment in this cohort, with potential risks from sustained immunosuppression of increased infection rates and the chance of malignancy.

Objectives: Studies have shown biologic tapering is possible. Some studies have performed progressive tapering using DAS28 scores, others with ultrasonography assessment².

We used a progressive tapering strategy in tapering biological DMARDs in a selected RA cohort in a busy UK University Teaching Hospital, using ultrasound to guide the tapering process throughout and for detecting early recurrence during longer term followup.

Methods: **Inclusion Criteria:** Patients identified from routine clinic appointments as being either in clinical remission (DAS 28<2.6), or with low disease activity (DAS 28<3.2 and no swollen joints), and with no flares of their RA for at least 12 months.

Assessment: At each clinic visit the patients' joints were examined, a DAS 28 and HAQ completed. Ultrasound was performed on hand and wrist joints (MCPJ's, PIPJ's, Wrists) in both Grey scale and Power Doppler to assess for inflammation. Biologic medication was progressively tapered according to results. Adalimumab was tapered to '3 weekly – 4 weekly – stop' and Etanercept to '2 weekly – 3 weekly – stop'. Patients were given 3 monthly appointments. If patient flared or Ultrasound showed active synovitis, tapering was stopped and medication adjusted according to the findings. Patients were followed up for a year at 3 monthly intervals, a year at 6 monthly intervals and then referred back to routine outpatient clinic.

Results: 28 patients were identified on Adalimumab and 8 on Etanercept.

Adalimumab: 17 patients (61%) stopped completely. At the time of writing, 16 (94%) remained off at 6 months. 12 (71%) at 12 months and 5 (29%) for >23 months. 6/17 flared and had to restart medication – 3 returned to a 4 weekly dose, 1 to 3 weekly and 2 to 2 weekly. 11/17 (65%) remain off medication.

At present 7 patients (25%) are on a 4 weekly dose, 1 (4%) patient is on a 3 weekly dose and 9 (32%) remain on 2 weekly.

Etanercept: 4 patients (50%) stopped completely. 1 of these has remained off for over 12 months and 1 over 24 months. 1 of these patients returned to weekly injections within 4 months

1 patient (12.5%) is on a 2 weekly dose and 4 (50%) remain on weekly

The management of 72% of patients was optimised using Ultrasonography. Ongoing cost savings as a result of tapering were in the region of £250,000.

Conclusions: Our study shows Ultrasound significantly aided in successful biologic tapering. It helped in selection of appropriate patients, as well as in monitoring during/after tapering. It also resulted in significant cost savings in the region of £250,000

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SAT0204 NAÏVE AND RECENT THYMIC EMIGRANT CD4+ T CELLS INCREASE IN RHEUMATOID PATIENTS TREATED WITH ABATACEPT.

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Background: CD4+ T cells in rheumatoid arthritis (RA) display a peculiar restriction of the T-cell receptor (TCR) repertoire which compromises their ability to react to novel antigens (1). We demonstrated that this process could be partially reverted by abatacept (ABA), which is a blocker of T lymphocyte co-stimulation, used in the treatment of RA (2). This effect could be at least in part due to a reduced generation of oligoclonal effector T cells, such as CD4+CD28-T cells (2). To better understand the mechanisms underlying this phenomenon, we speculated that ABA could influence the frequency of other peripheral T cell subpopulations, even at early stages of maturation. The homeostasis of the naïve T cell pool is maintained not only by thymus production, but also by mechanisms of peripheral replication involving TCR activation, which can be revealed by CD31 (PECAM-1) down-modulation (3). Indeed, CD4+CD45RA+CD31+ T cells have been described as recent thymic emigrants (RTE) newly produced by the thymus and CD4+CD45RA+CD31- T cells as central naïve, involved in a self-renewal peripheral process. This latter population may have a restriction of TCR repertoire and was shown to be involved in mechanisms of cardiovascular damage in patients with coronary syndrome (4).

Objectives: We aimed at profiling circulating naïve CD4+CD45RA+ T cells, by assessing their expression of CD31.

Methods: Thirty-one RA patients (median age [10th-90th percentile] 42 [25–64] years) were evaluated before and after 6 months of ABA therapy. The response to treatment was evaluated with the EULAR criteria. Phenotypic analysis of peripheral blood T lymphocytes was made by flow-cytometry.

Results: After ABA therapy, the absolute number of total T CD4+ increased from 780 [423–1351] to 1000 [658–1566] cells/mm³ (p=0.01). Total naïve CD4+ increased in percentage (33 [18–56] vs 40 [20–61] % of CD4+; p=0.02) and in absolute number (257 [82–568] vs 344 [62–689] cells/mm³; p=0.03). In parallel, the number of RTE increased in percentage (10.6 [2–26] vs 11.6 [3–25] % of CD4+; p=0.04) and in absolute number (51 [15–194] vs 110 [23–271] cells/mm³; p=0.01). The central naïve counterpart did not show significant variations in percentage (29 [23–40] vs 27 [20–38] % of CD4+; p=0.20) nor in absolute number (191 [41–404] vs 242 [76–526] cells/mm³; p=0.20). The modifications of T cell number were not significantly different when good and moderate responder (n=22) and no responder (n=9) patients were compared, at baseline and after therapy. No correlation was found between age of patients, clinical features of the disease and RTE number at baseline and after 6 months.

Conclusions: The number of total naïve T cells increases after therapy with ABA together with the number of RTE, suggesting a thymic output boost. Besides the peripheral effect in reducing the number of effector T cells which was showed by previous studies (5), ABA could have a role in promoting the immune reconstitution at the early stage of T cell development. Furthermore, a consequent favorable effect on possible cardiovascular damage mechanisms mediated by CD31-T cells might be hypothesized.

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SAT0205 COMPARISON OF DISEASE STATUS IN UK PATIENTS WITH RA RECEIVING TNFI VS CDMARD

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Background: UK NICE guidance recommends initiation of tumour necrosis factor-alpha inhibitor (TNFi) for patients with severe RA unresponsive to intensive