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Adalimumab antibodies in Rheumatology Patients: An Audit

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Background

There are 3046 patients on bDMARDS in the Belfast Trust and of those, 1087 patients prescribed Anti-TNF monoclonal antibody, Adalimumab.

Research has shown immunogenicity with monoclonal antibodies. It has been observed that up to 12% of patients treated with Adalimumab will develop anti-drug antibodies.(1) There is an association with the development of these antibodies and both lower serum drug levels and non-response to treatment. Co-treatment with an alternative immunomodulatory agent can reduce the immunogenicity of Adalimumab. (2)

The majority of patients will develop antibodies within the first six months of treatment, however treatment failure may not be recognised for up to a year. (3) As obtaining minimal disease activity is gold standard treatment, there are potentially patients where treatment failure could be identified earlier.

Anti-adalimumab antibodies are not routinely tested in patients in the Belfast Trust Rheumatology Department. We carried out an audit to determine if there is a place for testing Adalimumab antibodies in our clinical practise.

Aims

The aim of this audit was to:

- Assess the number of patients that developed Anti- Adalimumab antibodies
- Establish if there is a correlation with presence or absence of antibodies, and the patients clinical response
- Assess if co-treatment with Methotrexate correlated with fewer patients developing antibodies and patients clinical response

Methods

Retrospective data collection using patients notes and an Electronic Care Record.

The clinical assessment corresponding to the date of the Anti-Adalimumab antibody test was reviewed. Data extracted included diagnosis, DAS-28, BASDAI, ESR CRP, duration of Anti-TNF treatment, number of previous bDMARDS, co-prescription with Methotrexate and dose of Methotrexate

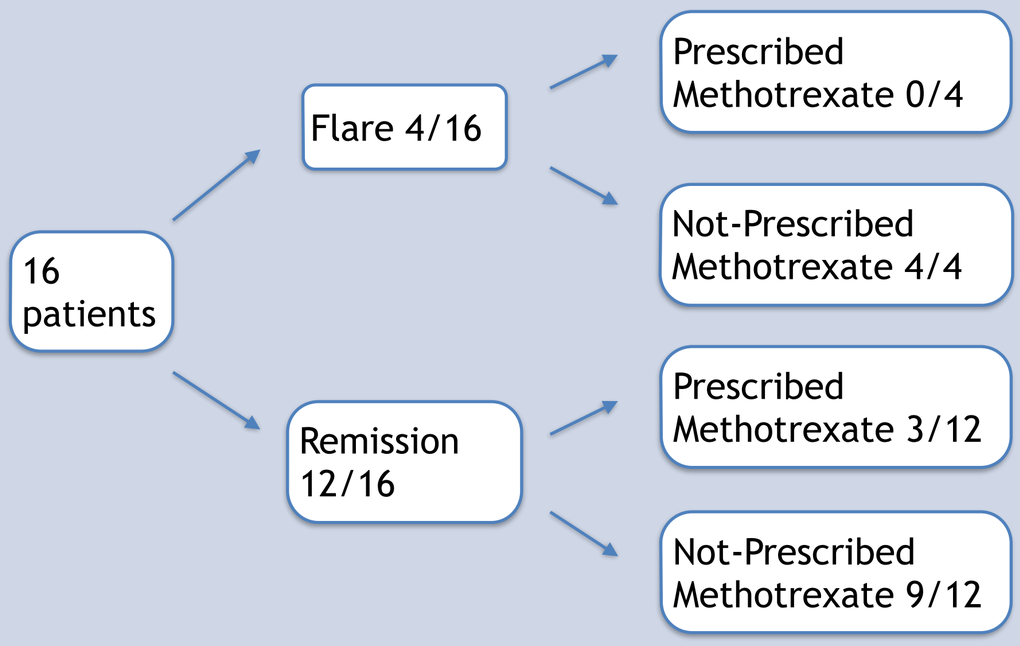
Results

16 patient notes were audited.

0/16 developed Adalimumab antibodies.
4/16 patients were deemed to have treatment failure and were switched to an alternative bDMARD

	Disease remission	*Disease failure - primary inefficacy*	*Disease failure - secondary inefficacy*
Developed antibodies	***0/12***	***0/1***	***0/3***
Did not Develop antibodies	***12/12***	***1/1***	***3/3***

In total 3/16 patients were prescribed Methotrexate.



Of the 13 patients not prescribed Methotrexate:
- 4 Patients diagnosed Ankylosing Spondylitis - not indicated
- 3 patients had documented side effects or abnormal LFTS
- 6 Patients failed as first or second DMARD and not restarted

Discussion

Loss of clinical response to bDMARDs is a common scenario and there are multiple reasons for this. There is a challenge in clinical practise to establish the reason for treatment failure in order to help guide treatment decisions moving forward.

In this Audit, the patients with high disease activity despite treatment with Adalimumab had not developed antibodies, which highlights the need to asses for alternative reasons for treatment failure other than development of antibodies.

This audit aimed to identify whether there is a place in our clinical practise in the Belfast trust Rheumatology Department to routinely check Adalimumab antibodies. Although none of the patients developed anti-bodies, this was limited by a small cohort. It has identified an area where further work needs to be carried out to determine where to efficiently use them in clinical practise.

Despite well established evidence that addition of an immunomodulator can reduce immungenicity of monoclonal antibodies, only a small number (4/16) of the patients in this audit were prescribed these. 6 of the 12 patients that were not prescribed Methotrexate had previously been prescribed Methotrexate with no contraindication and was stopped due to inefficacy. This is the cohort of patients to consider an immunomodulator in addition to Anti-TNF therapy to reduce the risk of immunogenicity.

References
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