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Developing a pathway for tocilizumab treatment in giant cell arteritis: a South London regional experience

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Background: Tocilizumab is now approved by the National Institute of Health and Care Excellence (NICE) for up to a year in relapsing or refractory giant cell arteritis (GCA). The practicalities of developing a pathway for referral using a hub and spoke model were previously unknown. Here we discuss our novel experiences utilising tocilizumab for GCA in its first year of licensing, after the introduction of a new regional multi-disciplinary team referral pathway.

Methods: We assessed all patients started on tocilizumab for GCA between August 2018-May 2019. The central assessing hub is St George’s University Hospitals NHS Foundation Trust, a large tertiary rheumatology department in the South of England, serving a population of 1.3 million.

Results: A total of 9 patients were identified; 6 female and 3 male, with an average age of 74.2 (range 63-80). 5 patients were referred internally from clinicians at St George’s Hospital, with the remainder from local district general hospitals.

Steroid protocols between patients were varied, and two-thirds required a 3-day IV methylprednisolone course, including all 4 patients with visual symptoms. A third of patients were on concurrent methotrexate, a disease-modifying antirheumatic drug. 8 of 9 patients were on alendronate, vitamin D/calcium, and a gastroprotective agent, and 7 were on aspirin. Reported side effects from steroids were common, with weight gain, increased appetite and osteoporosis noted.

All of our 9 patients continue their tocilizumab injections, with one individual having a 3-month break for a routine hip operation, and another a 1-month hiatus due to temporary derangement in liver function tests. Tocilizumab proffered improved disease control and few side effects were noted. 3 patients have now been on tocilizumab for 12 months and raise interesting discussions about ongoing funding and treatment efficacy.

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Patient number** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** |
|  | **Age** | 78 | 78 | 74 | 74 | 78 | 80 | 73 | 70 | 63 |
|  | **Sex** | M | M | M | F | F | F | F | F | F |
|  | **Duration of GCA disease (months)** | 10 | 11 | 10 | 31 | 80 | 72 | 15 | 14 | 171 |
| Medication | **Steroid dose at start of TOC (mg)** | 50 | 20 | 40 | 20 | 25 | 10 | 60 | 40 | - |
| **Most recent steroid dose (mg) and date** | 20mg,  May 2019 | 20mg,  Jun 2019 | 17.5mg,  Sep 2019 | 6mg,  Jun 2019 | 6mg,  Aug 2019 | 4mg,  Oct 2019 | 7mg,  Jul 2019 | - | 5mg,  Jul 2019 |
| **Months on TOC (as of Oct 2019)** | 7 | 4 | 4 | 7 | 12 | 11 | 12 | 12 | - |
| **Concurrent DMARDs and dose** | MTX  10mg qw | - | - | MTX 15mg qw | - | - | - | - | MTX 25mg qw |
| Blood results | **ESR at presentation** | 28 | 49 | 15 | 42 | 55 | 13 | 51 | 38 | - |
| **ESR before start of TOC** | 6 | 35 | 4 | 32 | 10.2 | 11 | 51 | 48 | - |
| **ESR after start of TOC** | 2 | 31 | 2 | 20 | 9.2 | 5 | 42 | 23 | - |
| **CRP at presentation** | 403 | 176 | 3.5 | 124 | 105 | 10.9 | 37 | 113 | - |
| **CRP before start of TOC** | 2.5 | 6.2 | <1.0 | 5.8 | <1.0 | 4.9 | 37 | 18 | - |
| **CRP after start of TOC** | <1.0 | 8.3 | <1.0 | 3.3 | 1.7 | 5.1 | 14 | 3.3 | - |
|  | **Temporal artery biopsy** | Negative | Positive | Positive | Negative | Positive | Incon-clusive | Incon-clusive | Positive | - |
|  | **Comorbidities** |  | PMR, asthma, IHD | RA | PMR, Hypothyroidism | PMR | PMR, HTN | RA | CVA | Takayasu's arteritis |
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| **Index:** GCA = giant cell arteritis, TOC = tocilizumab, DMARDs = disease modifying antirheumatic drugs, MTX = methotrexate, qw = once weekly, ESR = erythrocyte sedimentation ratio, CRP = c-reactive protein, PMR = polymyalgia rheumatica, IHD = ischaemic heart disease, RA = rheumatoid arthritis, HTN = hypertension, CVA = cerebrovascular accident | | | | | | | | | | |

Table 1: Data collected from 9 patients with giant cell arteritis on tocilizumab treatment

Conclusion: Our case series shows the development and delivery of an effective hub and spoke referral pathway for tocilizumab treatment in GCA. We show that steroid dosing could be reduced with tocilizumab, and that all subjects received full funding for treatment. Our referral pathway has encouraged the uptake of the IL-6 monoclonal antibody treatment for GCA and compliance with NICE guidelines.