

How does the duration of treatment and post-treatment remission interval differ amongst patients with non-infectious uveitis who were treated across a 2–2.5-year period?

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Abstract

Introduction As patients with non-infectious ocular inflammation are weaned off treatment, the disease may relapse. The purpose of the study was to evaluate the association of treatment duration, type of therapy and uveitis aetiology with post-treatment inflammation remission interval.

Methods Inclusion criteria were patients with non-infectious ocular inflammatory disease with more than two visits spanning at least 90 days and a total treatment time of 2–2.5 years. A retrospective chart review was carried out with data collected for duration of treatment, post-treatment remission interval and treatments, and uveitis aetiologies of non-infectious ocular inflammation.

Results Fifty-eight per cent of those treated with corticosteroids achieved complete remission. Amongst patients treated with corticosteroids who relapsed, a duration of treatment of 4.6 months resulted in an inflammation-free period of 23.4 months. Amongst all treatment or aetiological groups, those with a duration of treatment that ranged between 2 to 2.5 months had a post-treatment remission interval of at least 21 months.

Conclusions Corticosteroids were an effective treatment. Following a treatment regimen with a shorter duration of treatment (yet a higher risk of relapsing) may result in a better quality of life for patients.

Definitions

Duration of treatment: The time of the first visit to the last visit where treatment was discontinued.

Post-treatment interval (in patients who achieved complete remission): The time between the last visit where treatment was discontinued and 3 July 2018.

Post-treatment interval (in patients who had a recurrence of inflammation): The time between discontinuation of treatment and when patients had a relapse in inflammation.

Introduction

In Europe, uveitis is the fifth or sixth leading cause of preventable blindness with an approximate prevalence of 5–15%.¹ Untreated, uveitis can cause glaucoma, retinal lesions, macular oedema, and eventual blindness.² Remission is possible with immunomodulatory

treatments; however, ocular inflammation can relapse once therapy is discontinued, which puts the patient at risk of further vision loss. Although remission and relapse are known to occur, the factors that influence non-infectious ocular inflammation to either relapse or undergo remission are not understood.²

This study investigates the association between the types of uveitis therapy or aetiologies and the duration of treatment for non-infectious ocular inflammation and the post-treatment remission interval following treatment discontinuation. This study is the first to measure and compare the association of complete remission and relapse in inflammation and the associated durations across various treatments and aetiologies of ocular inflammation in a single study. Understanding which treatments or aetiologies are associated with better outcomes allows physicians to tailor and deliver efficient treatment and circumvent less effective and prolonged treatment.

Methods

A retrospective chart review was conducted using data from one uveitis specialist (author CG) at The University of Ottawa Eye Institute, Ottawa, ON, Canada. Ethical approval was not required for the use of this data. Inclusion criteria were patients with non-infectious ocular inflammatory disease (uveitis, scleritis, or episcleritis) and patients with more than two visits spanning at least 90 days and a combined duration of treatment and post-treatment remission interval of 2–2.5 years (**Figures 1 and 2**).

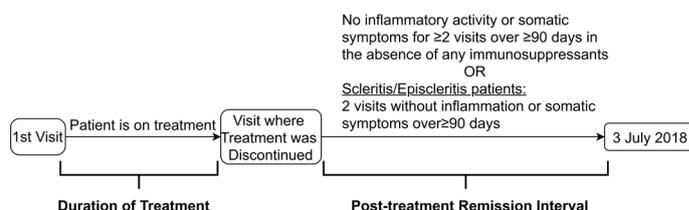


Figure 1. Timeline of patients who achieved remission.

Of 4798 available charts, 14 charts met inclusion criteria and were selected for review. The reason so few cases were selected was because few patients met the inclusion criteria, with a combined duration of treatment and post-treatment remission interval of 2–2.5 years. The duration of treatment is defined as the time of the first visit to the last visit where treatment was discontinued (**Figures 1 and 2**). In patients who achieved complete remission, the post-treatment interval is the time between the last visit where treatment

was discontinued and 3 July 2018—the end of the review (**Figure 1**); for patients who had a relapse, it is the time period between discontinuation of treatment and when they had a relapse in inflammation (**Figure 2**).

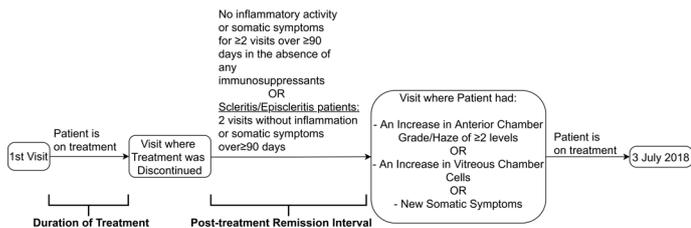


Figure 2. Timeline of patients who relapsed in inflammation.

Participants were separated based on the treatment they received and the aetiology of their ocular inflammation. These groups were further divided depending on whether a patient achieved remission or had a relapse in inflammation. The average (mean) treatment duration and the average post-treatment remission interval are reported.

Remission or relapse in inflammation The definition of “remission” was adapted from the Systemic Immunosuppressive Therapeutic Eye (SITE) study group and defined as a complete absence of any inflammatory activity at ≥ 2 visits spanning ≥ 90 days, in the absence of any immunosuppressant medications, without any somatic symptoms.³ In patients with scleritis or episcleritis, remission was defined as two visits without inflammation or somatic symptoms over ≥ 90 days (**Figure 1**). “Relapse in inflammation” was defined as an increase in anterior chamber cell grade of at least two levels in the Standardization of Uveitis Nomenclature (SUN) working group grading scheme of anterior chamber cells/flare or vitreous chamber haze or the development of new somatic symptoms following a period of complete remission (**Figure 2**).⁴

Results

As shown in **Tables 1 and 2**, nine patients from our study group had achieved remission, while five patients had relapsed in inflammation. Corticosteroids were the most common treatments in patients who achieved remission (88.89%) and relapsed (100%). Anterior uveitis was the most common aetiological diagnosis in both patient groups, occurring in 66.67% of patients with remission and 40% of those who relapsed.

Table 1. Data for patients who had achieved remission.

Aetiology of ocular inflammation	Treatment	Treatment duration (months)	Post-treatment remission interval (months)	Total duration (months)
Anterior uveitis	Corticosteroids	11	16	27
Anterior uveitis	Corticosteroids	25	3	28
Anterior uveitis	Corticosteroids	19	5	24
Anterior uveitis	Corticosteroids	24	4	28
Anterior uveitis	Corticosteroids	19	7	26
Anterior uveitis (HLA B27*)	Corticosteroids	27	3	30
Birdshot retinochoroidopathy	Corticosteroids	22	5	27
Scleritis	Methotrexate	25	3	28
Scleritis	Corticosteroids and NSAIDs	12	12	24

Table 2. Data for patients who relapsed.

Aetiology of ocular inflammation	Treatment	Treatment duration (months)	Post-treatment remission interval (months)	Total duration (months)
Anterior uveitis	Corticosteroids	12	18	30
Anterior uveitis	Corticosteroids	3	24	27
Autoimmune retinopathy	Corticosteroids	3	24	27
Fuchs uveitis	Corticosteroids	3	24	27
Scleritis	Corticosteroids	2	27	29

Treatments In patients who achieved remission (**Figure 3**), combined treatment with corticosteroids and non-steroidal anti-inflammatories (NSAIDs) resulted in the shortest mean duration of treatment (12 months) and post-treatment remission interval (12 months). Methotrexate had an average treatment duration of 25 months and a post-treatment remission interval of 3 months, while for corticosteroids alone, treatment duration was 21 months and the post-treatment remission interval was 6.1 months.

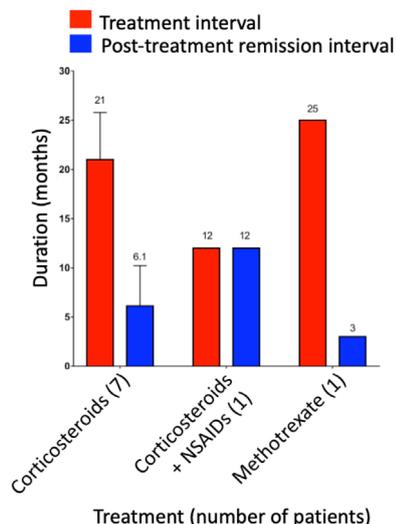


Figure 3. Average treatment interval and post-treatment remission interval for treatments amongst patients treated for 24–30 months who achieved remission.

The five patients who relapsed and were treated with corticosteroids (**Figure 4**) had an average treatment duration of 4.6 months and a post-treatment remission interval of 23.4 months.

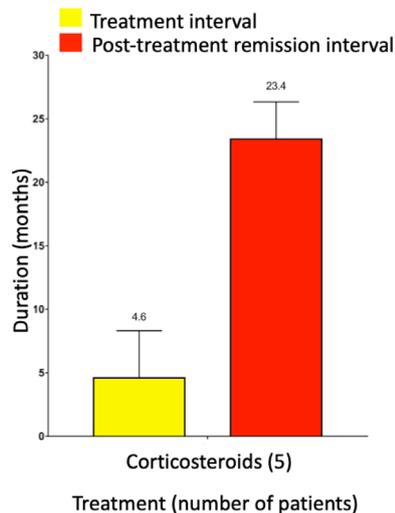


Figure 4. Average treatment interval and post-treatment remission interval for treatments amongst patients treated for 24–30 months who relapsed.

Aetiological diagnosis Patients with anterior uveitis who achieved remission (**Figure 5**) had an average treatment duration of 20.8 months and a post-treatment remission interval of 6.3 months. In the scleritis group, treatment duration and post-treatment remission interval were 25 months and 7.5 months, respectively, whilst for the patient with birdshot retinochoroidopathy, they were 22 months and 5 months, respectively.

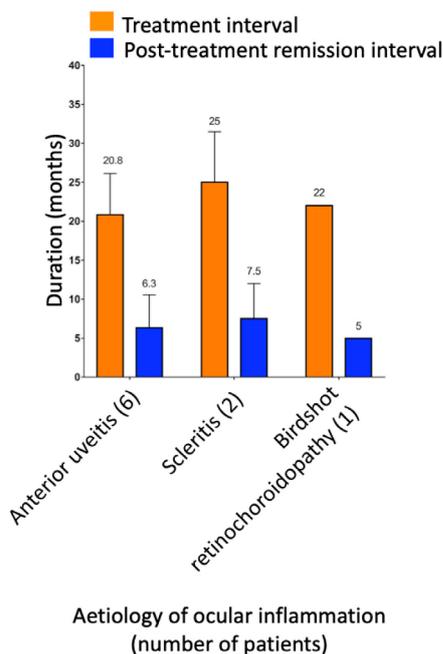


Figure 5. Average treatment interval and post-treatment remission interval for uveitis aetiologies amongst patients treated for 24–30 months achieving remission.

Amongst those who relapsed (**Figure 6**), the patients with anterior uveitis had an average treatment duration of 7.5 months and a post-treatment remission interval of 21 months. For the scleritis patient, treatment duration and post-treatment remission interval were 2 months and 27 months, respectively, and for both the patient with Fuchs uveitis and the patient with autoimmune retinopathy, the values were 3 months and 24 months, respectively.

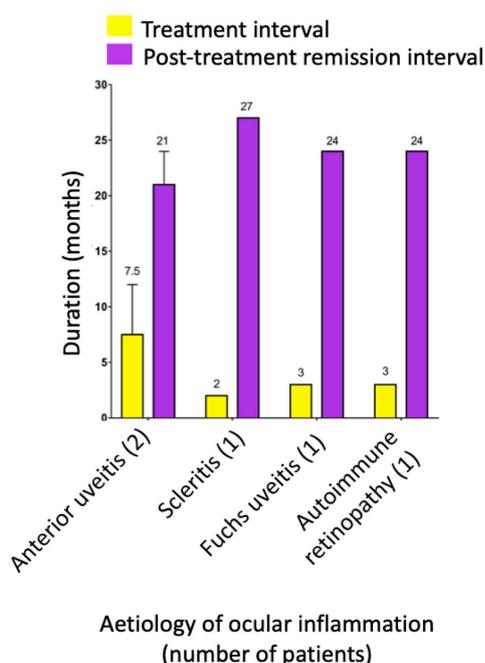


Figure 6. Average treatment interval and post-treatment remission interval for uveitis aetiologies amongst patients treated for 24–30 months who relapsed.

Discussion

This study found that a longer initial duration of treatment was associated with a higher success in achieving remission. As shown in **Figures 3–6**, those treated with an average treatment duration of at least 12 months achieved remission, while those with an average treatment duration of 2–7.5 months had a relapse in inflammation; however, these patients had a relatively long post-treatment remission interval of at least 21 months. Considering the many adverse effects of immunomodulators (such as corticosteroids and methotrexate), treating patients for a period of 2–7.5 months (with a post-treatment remission interval of at least 21 months) would most likely result in a better quality of life.⁵

Corticosteroids were the most common drug used to treat patients with ocular inflammation. Fifty-eight per cent of those treated with corticosteroids achieved complete remission. In patients who relapsed, a treatment duration of just 4.6 months resulted in an inflammation-free period of 23.4 months, suggesting that corticosteroids are effective for treating non-infectious inflammatory eye disease.

A limitation in this study was the small sample size; as a result, the power of our associations is quite low. Further research needs to be done to determine which treatments and aetiologies of non-infectious inflammatory eye disease are associated with a higher rate of relapse or remission of inflammation. Another limitation of our study is that, with such a small sample size, the findings cannot be truly representative of the population. Unfortunately, there is no current literature on such a topic to which we could compare our findings.

The study interval was short. Those that had a longer treatment duration and a shorter follow up period were, consequently, less likely to relapse in inflammation during the remaining period of the study. It is important to consider that, if the time period of the study was longer, these patients might also have relapsed. Further studies with a longer duration would give insight into which patients relapse or stay in remission.

Conclusion The longer the duration of treatment for non-infectious uveitis (at least 12 months), the more likely it is that a patient would achieve remission. Amongst those with a treatment duration of 2–7.5 months, there was a post-treatment remission interval of at least 21 months; following this treatment regimen might result in a better quality of life. Corticosteroids were the most common drug used and appeared to be effective treatments.

Contribution statement Saanwalshah Samir Saincher designed the project, analysed the data and wrote the manuscript. Chloe Gottlieb supervised this research, designed this project, aided in analysing the data and writing the manuscript, and approved the final version to be sent to the *INSPIRE Journal*. Saanwalshah Samir Saincher is responsible for the integrity of the work as a whole.

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