Full Protocol

Retrospective Analysis of the Use of Biologics for Juvenile Idiopathic Arthritis Related Uveitis in Abou El Reesh Pediatric Hospital, Cairo University

Background and introduction

Juvenile Idiopathic Arthritis (JIA) remains, globally, the most common systemic disorder associated with pediatric uveitis. It accounts for approximately 75% of cases of pediatric anterior uveitis (AU) and affects around 30% of ANA positive JIA patients (regardless their type of arthritis.1. In a cohort study from the Cairo University Pediatric Hospital, JIA accounted for 39% of all cases of pediatric uveitis (unpublished data).

The uveitis, being asymptomatic, chronic and often severe, leads to complications in a large number of patients. Studies estimate that 28–67% of patients with JIA-associated uveitis develop ocular complications, with 12% developing poor visual outcome. The main causes of poor vision were cataract, band keratopathy and macular edema.2

The only means of improving long term effects of uveitis, is early and aggressive anti-inflammatory treatment.3

The main line of treatment of non-infectious causes of uveitis have been topical and systemic corticosteroids. However, it is well known that their prolonged use often leads to ocular and systemic complications, especially in the pediatric age group. 4

In 2019, the American College of Rheumatology/Arthritis Foundation recommended that in severe active chronic AU or in the presence of sight-threatening complications, methotrexate (MTX) and a monoclonal antibody TNFi should be administered immediately. This is recommended over MTX as monotherapy. They also recommended that inadequate response to one monoclonal TNFi at standard JIA dose, the dose and or frequency should be increased rather than switching to another monoclonal antibody TNFi.5

Immunosuppressive drugs are used as steroid-sparing agents but are not free of complications. They increase the susceptibility of children to infection, may cause organ toxicity, reversible bone marrow suppression and may possibly lead to the development of malignancies.3

Thus, our study aims to analyze the use of biologics in our hospital (Abou el Reesh, Cairo University) for children with JIA in controlling their ocular inflammation, prevention of the development of sight threatening complications and if this outweighs their potential associated side effects.

Patients and methods

Population of study & disease condition

Retrograde analysis of data of all patients presented to Aboul Reesh uveitis clinic taking biologics from January 2017- January 2020. In our hospital, the rationale for using biologics was a high frequency of sight-threatening, frequent recurrences of uveitis or intolerance to steroids or other immunosuppressive drugs, with severe adverse reactions.

Sample size:

It is expected to review 250 patients files of Aboul Reesh uveitis clinic to find all JIA patients with ocular inflammation treated with biologics.

Inclusion criteria

1. Both genders
2. Age up to 16 years
3. Diagnosed JIA according to rheumatological criteria with ocular affection

-Any type of arthritis (oligoarticular, polyarticular, systemic onset, ocular JIA)

- ANA positive or negative

4. Uncontrolled uveitis or frequent relapses s

Exclusion criteria:

1.Patients without definitive diagnosis as JIA

2. JIA patients on biologics without ocular affection (for systemic control) or with uveitis controlled without the use of biologics
4.Patients without adequate duration for follow-up (less than 3 months) or lost follow up data
5.Patients without available data prior to the start biologics (to compare control of the uveitis)

Methodology

Data will be obtained from by retrospective analysis of all files of patients with JIA from the Abou El Reesh ophthalmology outpatient clinic.

The patients with ocular inflammation treated by biologics will be further analyzed.

The data analyzed will divided into pre and post biologic treatment:

In both we will document-
-Baseline BCVA (in logMar notation)
- Grading of ocular inflammation
(Anterior chamber and vitreous cells were graded as +0.5, +1, +2, +3 and +4 according to the guidelines of the Standardization of Uveitis Nomenclature Working Group)
- Number of relapses in one year
- Development of sight threatening complication
- Dose and frequency of systemic, regional and topical steroids
- Other interventions required

Treatment parameters to be analyzed include type, duration and dose of biologic agent used, time taken to reach inflammation control, adverse effects, and time taken to develop those adverse effects.

Improvement or worsening of activity of inflammation was assessed according to the Standardization of Uveitis Nomenclature Group's directions (2 step improvement or worsening of cells/flare)

Treatment was determined as efficacious if one of the following was fulfilled:

1. No relapses or decrease in the number of relapses
2. Decrease in dose of topical or systemic steroids
3. Improvement of BCVA of at least two lines

Statistical analysis plan:

All data will be entered into Excel spreadsheets (Microsoft Corporation, Redmond, WA, USA). All statistical analyses will be performed using IBM SPSS version 22.0 software (IBM Corp., Armonk, NY, USA). Descriptive statistics will be summarized as the mean ± standard deviation for numerical data, frequencies and percentages for categorical data. The ANOVA -test and Pearson moment correlation will be used to compare the means for the numerical data and to identify correlations between them. Chi-square test will be used to compare categorical data. P-values ≤ 0.05 will be considered statistically significant.

References

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