

Indocyanine green angiography (ICGA) Assessment of Refractory Birdshot Retinochoroiditis on Abatacept: Preliminary Outcomes from the United Kingdom

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1. INTRODUCTION

- Birdshot retinochoroiditis (BRC)** is an HLA-A29 associated autoimmune posterior uveitis that is notoriously difficult to treat.
- Abatacept** is an emerging BRC therapy that inhibits T-cell co-stimulation and thus T-cell mediated autoimmune response
- However limited studies report long-term outcomes of abatacept in BRC.
- BIRDSET is a standardised indocyanine green angiography (ICGA) grading system in the UK assessing hypofluorescent dark dots (HDDs) with objective analysis of stromal choroiditis and BRC treatments.
- We aim to evaluate early outcomes of abatacept in the treatment of refractory BRC through objective ICGA scoring and adverse effects.

2. METHOD

Retrospective analysis of 5 refractory BRC patients under care at Moorfields Eye Hospital who had 4-weekly abatacept 500mg intravenous (IV) infusions at Guy’s & St Thomas’ hospitals between October 2024 to May 2025. Data collected from OpenEyes (electronic patient records system) included: baseline characteristics, previous therapies, and follow up outcomes.

ICGA was used to assess pre and post abatacept response as a principal imaging modality for evaluation and follow up of choroidal inflammation in uveitis (1). ICGA was scored independently by two experienced clinicians and averaged at 2 timepoints: 1) Just prior to treatment initiation and 2) Closest to latest follow up.

Findings/stage	Number of Quadrants Involved (1 score per quadrant)	Persists only to Mid Phase (3-15 minutes)	Persists to Late Phase (Minimum 20 minutes)	None	Maximum Score possible
Peripheral hypo dark dots (outside arcades)	1,2,3,4	2	4	0	8
Posterior pole hypo dark dots (Between arcades)	N/A	4	8	0	8
MAXIMUM SCORE					16

Figure 1: ICGA scoring system (range 0-16)

ICGAs were graded using a standardised 16-point BIRDSET score (Fig. 1).

Score assesses HDDs in the peripheral retina:

- Beyond arcades (0-8 points)
- Posterior pole (0-8 points)

3. RESULTS

Pre-abatacept vs Post-Abatacept

All five patients were HLA-A29 positive Caucasian females with a median age of 56 years (range 47-61 years); with mean age of diagnosis at 50.6 years. Median duration of abatacept was ~ 7 months (229 days). All five patients previously failed ≥ 2 **biologic agents** with a trial median of 5 immunosuppressives (range 4–7) due to:



- Three patients previously required Ozurdex steroid injections to control visual symptoms.
- Two patients were on low-dose prednisolone therapy (7.5 and 10mg OD) at time of pre-abatacept ICGA score as bridging therapy from previous treatment.

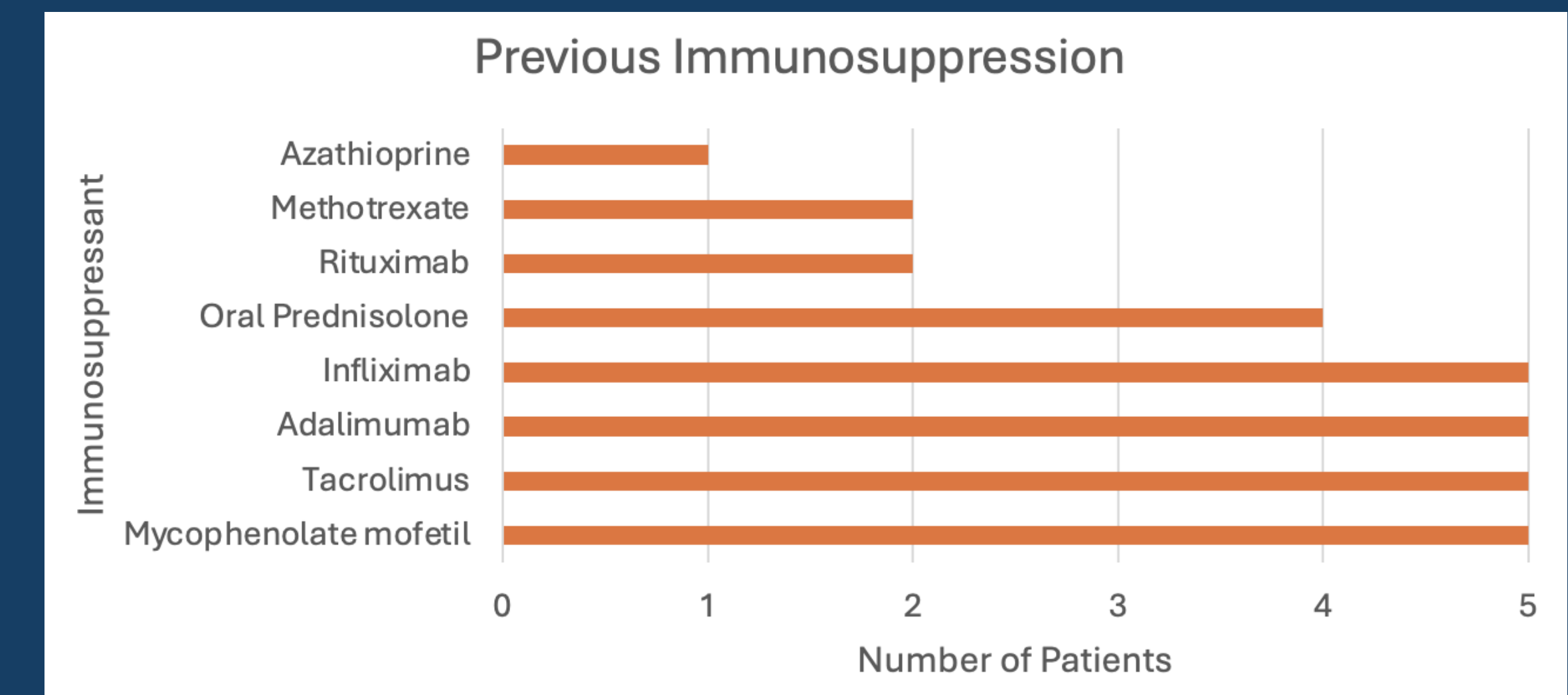


Figure 2: Previous immunosuppressants trialled prior to abatacept initiation

An inter-rater reliability analysis was conducted on 20 observed samples to determine consistency between the two independent raters for ICGA BIRDSET scores. Cohen’s Kappa (κ) was calculated to measure statistical agreement. 85% (17/20) of observed agreement in scores was found between the two raters. The inter-rater reliability was found to be substantial: $\kappa = 0.784$ (95% CI, 0.568 to 0.982). A weighted κ was calculated given the small sample size = 0.909.

At latest follow up (Nov 2025) following abatacept initiation:

- Three of five (60%) showed significant improvement in visual symptoms with stable disease on ICGA assessment.
- Two patients had active disease and stopped abatacept after 6 and 7 months respectively => Both required rescue Ozurdex and one also required oral steroids.

Patient	Pre-abatacept average ICGA score	Post-abatacept average ICGA score
1	16 (100%)	14 (87.8%)
2	0	0
3	15 (93.8%)	0
4	10.5 (65.6%)	0
5	11 (68.8%)	0

Table 1: Pre and post abatacept average ICGA scores expressed as % (n/16)

Of the 5 patients :

- 3 patients (60%) achieved disease control (score 0).
- 4 patients (80%) improved their ICGA scores.
- 2 failed therapy but reduction of score by median 1 point.
- One patient reported oral ulcers.
- No patients reported any major abatacept-related adverse side effects during this timeframe.

3. RESULTS (continued)

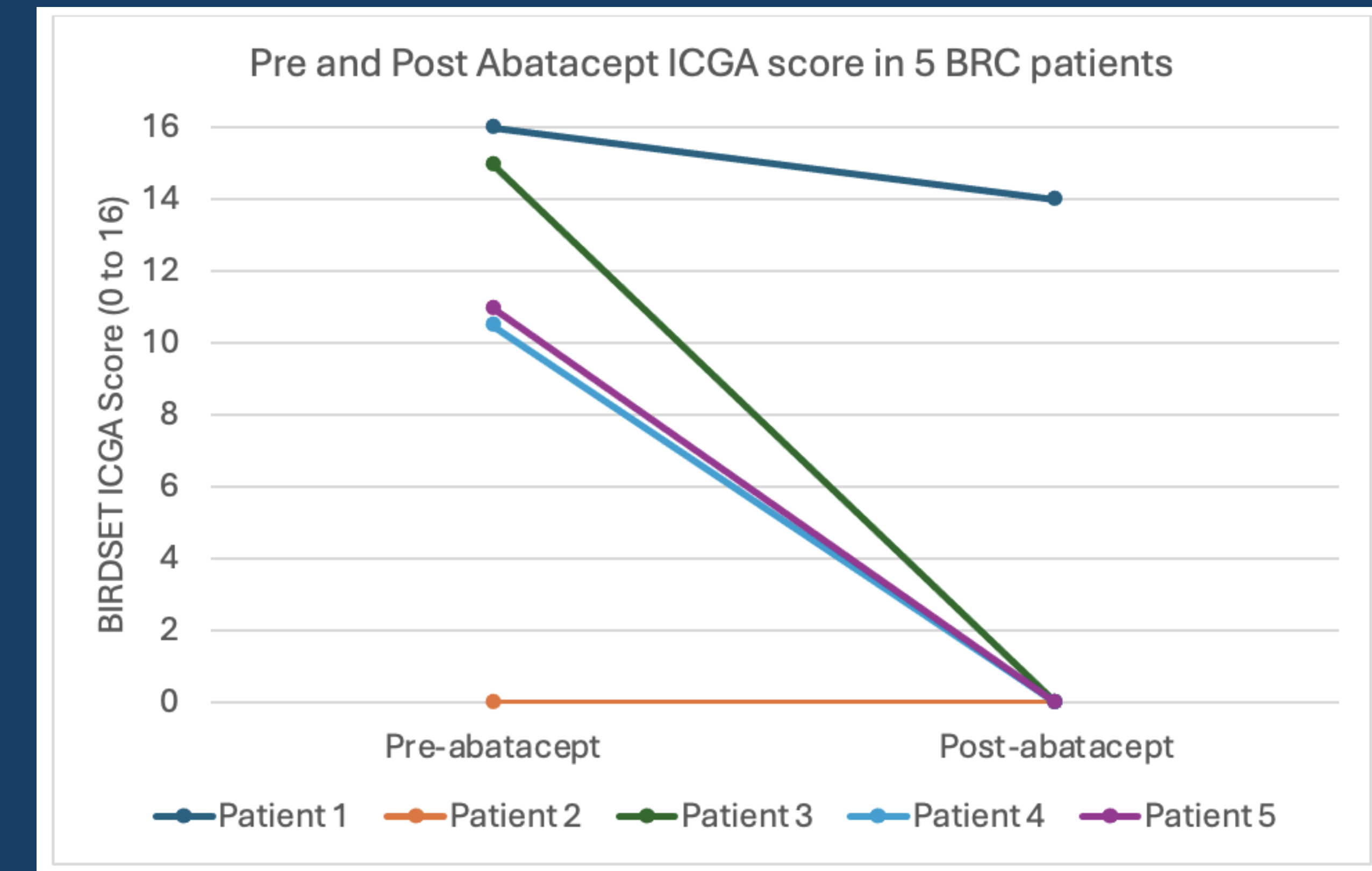


Figure 3: Pre and post abatacept average ICGA scores for each patient expressed as % (n/16)

4. CONCLUSION

In this cohort, abatacept was associated with objective ICGA-based improvement in choroidal inflammation in **60% of patients**. Complete angiographic remission was achieved in three of five patients with a favourable safety profile over a median of 7 months.

These preliminary findings suggest abatacept may represent a useful therapeutic option in refractory BRC, and potentially in other T cell-mediated posterior uveitides. However, larger studies with longer follow-up is required.

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