Safety Profile and Visual Outcomes of Fluocinolone Acetonide Implants in Paediatric Non-Infectious Uveitis

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INTRODUCTION

- **Paediatric non-infectious uveitis (NIU)** is a chronic inflammatory condition of the eye that frequently leads to vision-threatening complications, such as **cystoid macular oedema (CMO), cataract formation, and ocular hypertension (OHT)** [1].
- Current treatments often involve **systemic corticosteroids** or **immunosuppressive therapies**, which carry considerable risks and side effects [2].
- Local corticosteroid injections, while safer, typically require repeated administration. The **Iluvien implant**, a sustained-release intravitreal **fluocinolone acetonide** device, has the potential to provide prolonged inflammation control, thereby reducing both systemic side effects and frequent clinical interventions [3].

AIMS

Primary Aim

- To evaluate the **effectiveness of Iluvien** implantation in **improving visual acuity and resolving or reducing CMO** in paediatric patients with non-infectious uveitis.

Secondary Aim

- To assess the **safety of Iluvien** implantation by monitoring **intraocular pressure (IOP) changes and recording any procedure-related complications**.

METHODS

- This **retrospective review of cases**, conducted at Moorfields Eye Hospital, London, included **paediatric patients aged ≤16 years** diagnosed with NIU-associated chronic CMO who received Iluvien implants.
- Data collection spanned **January 2021 to August 2024, with a minimum three-month follow-up** post Iluvien implantation or cataract surgery.
- All implants were placed using a pars plana approach under **general anaesthesia or sedation** by the same consultant ophthalmologist.
- Clinical outcomes were assessed by measuring **best-corrected visual acuity (BCVA), central subfield thickness (CST), and intraocular pressure (IOP), and by recording any complications at baseline, and at 1- and 3-month intervals post-implantation.**
- The review of cases was registered under the hospital's audit framework (Audit number: 1710) and complied with the Declaration of Helsinki

RESULTS

- A total of **seven eyes from five patients** were evaluated, with an average patient age of **12.9 years**. Diagnoses included juvenile idiopathic arthritis, immune recovery uveitis, intermediate uveitis, and IRVAN syndrome (Table 1).
- At three months post-implantation, **visual acuity significantly improved or remained stable in five of the seven eyes**. (Table 3). CST assessments revealed complete resolution of CMO in three eyes and notable improvement in three others.
- **No new cases of ocular hypertension were reported**, and pre-existing OHT remained controlled without additional treatments (Table 2). The implantation procedure was safe, with no serious complications such as retinal detachment, vitreous haemorrhage, or endophthalmitis reported. **Device malfunctions occurred on four occasions**. These outcomes are consistent with previous reports of fluocinolone acetonide implants in paediatric populations [4].

Table 1 - Patient Characteristics at Time of 0.18-mg Fluocinolone Acetonide Implant

Patient Number	Eye	Age (Years)	Sex	Uveitis Diagnosis	Baseline Lens Status	Number of Ozurdex implants pre Iluvien
1	OD	11	M	JIA Chronic Uveitis	Pseudophakic	2
2	OD	15	M	Immune Recovery Uveitis	Pseudophakic	8
2	OS	14	M	Immune Recovery Uveitis	Pseudophakic	6
3	OS	14	M	Intermediate Uveitis	Phakic	1
4	OD	11	M	IRVAN Syndrome	Phakic	2
4	OS	11	M	IRVAN Syndrome	Phakic	2
5	OD	14	F	JIA Chronic Uveitis	Pseudophakic	1

Table 2 - Intraocular pressure control pre and post steroid implantation

Patient Number	Eye	Pre-existing OHT	IOP Pre-Iluvien	IOP 1st month post implant	IOP 3 months post implant
1	OD	Y	10	4*	15
2	OD	Y	21	21	17
2	OS	Y	17	10	18
3	OS	N	14	13	9
4	OD	Y	10	10	16
4	OS	Y	12	9	18
5	OD	N	7	4 **	4

Post Iluvien implantation, none of the patients required either additional IOP lowering medication or surgery

*Low IOP post procedure thought to be secondary to wound leak, with normalisation of IOP at 3-month visit.

**Chronically low IOP as patient with known hypotonus maculopathy

Table 3 - Visual Acuity and Presence of CMO post steroid implants

Patient Number	Eye	Baseline BCVA (logMAR)	BCVA 3 months post Iluvien implant or cataract surgery (logMAR)	Presence of CMO 3 months post Iluvien implant or cataract surgery
1	OD	0.7	0.2	N
2	OD	0.56	0.2	Y
2	OS	0.56	0.2	Y
3	OS	0.8	0.06	N
4	OD	0.8	0.7	Y
4	OS	0.5	0.7	Y
5	OD	0.4	0.4	N

SUMMARY AND CONCLUSIONS

- Intravitreal Iluvien implantation showed promising efficacy in reducing CMO and stabilising or improving visual acuity in paediatric NIU patients. **No cases of new or exacerbated ocular hypertension occurred during the follow-up period**
- These results suggest that Iluvien may effectively **reduce systemic corticosteroid exposure and the frequency of anaesthetic procedures** in paediatric populations.
- However, **larger multicentre studies with longer follow-up periods are required** to validate these findings further. Ongoing clinical trials (NCT06539481) may provide further evidence regarding the long-term safety and effectiveness of Iluvien in this population.

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