INTRAVITREAL INJECTION OF TRIAMCINOLONE ACETONIDE COMBINED WITH PHACOEMULSIFICATION IN THE MANAGEMENT OF UVEITIC CATARACT

Thesis

Submitted in full fulfillment of M.D degree in ophthalmology

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2009

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2009

Abstract

The use of intravitreal injection of Triamcinolone acetonide combined with phacoemulsification in the treatment of uveitic cataract patients consider one of the best method in controlling post operative activation of inflammation and has a great role in the management of macular odema associated with these cases, but it may be associated with rise in intraocular pressure which is usually controllable and temporary.

KEYWORDS:**:**
Phacoemulsification- macular odema- uveitic cataract- Triamcinolone acetonide

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AC	Anterior chamber
ARMD	Age related macular degeneration
BCVA	Best corrected visual acuity
BSS	Balanced salt solution
CCC	Circular curvilinear capsulorhexisis
CME	Cystoid macular oedema
CNV	Choroidal neovascularization
EDTA	Ethylene diaminetetra acetic acid
FHI	Fuchs heterochromic iridocyclitis
HSM	Heparin-surface-modified
ILM	Internal limiting membrane
IOL	Intraocular lens
IVTA	Intravitreal Triamcinolone
JRA	Juvenile Rheumatoid Artheritis
KPs	Keratic precipitate
LECs	Lens epithelial cells
NSAID	Non steroidal anti-inflammatory

HPLC	High pressure liquid chromatography
IOP	Intra ocular pressure
OCT	Optical coherence tomography
OVD	Ophthalmic viscolastic device
PC	Posterior chamber
PCO	Posterior capsular opacification
PCR	Polymerase chain reaction
PDT	Photodynamic therapy
PMMA	Poly methyl methacrylate
POTA	Periocular Triamicinolone acetonide
PPV	Parsplana vitrectomy
TAA	Triamicinolone acetonide
UGH	Uveitis, glaucoma and hyphema
VKH	Vogt- Koyanagi- Harada

INTRODUCTION

Cataract is a frequently seen complication of uveitis, occurring in up to 50% of patients with juvenile rheumatoid arthritis (JRA),parsplanitis, and Fuchs' iridocyclitis ***(Raizman,1995)***.

The incidence in the other forms of uveitis is also high and seems to be related to both the location and duration of inflammation, as well as to the use of corticosteroid therapy ***(Tabbara and Chavis,1994)***.

When a cataract develops in a uveitic patient, the management is more complex than in a non- uveitic patient. The presence of posterior synechiae, pupillary membranes, and inflammation may make the surgery more difficult, and the postoperative course is often stormy ***(Rojas and Foster,1996)***.

Much controversy still exists regarding the best method of managing uveitic patients with cataract. Ideally ,absolute control of inflammation, by using topical and/or periocular steroid therapy, should be obtained for at least three months preceding surgery ***(Tanner et al,1998)***.

Even in eyes with little or no preoperative inflammation, postoperative activation of the inflammation is observed in most of uveitic patients in the form of significant membranes around the intraocular lens (IOL) and vitreous cells and debris, and the inflammation is usually severe and prolonged ***(Findl et al, 2005) (Hatsou et al, 2001)***.

This study deals with the efficacy, clinical course and complications of intravitreal injection of triamcinolone acetonide combined with phacoemulsification as a new line of controlling postoperative inflammation in patients with uveitic cataract.

AIM OF THE WORK

To evaluate the clinical outcome of combined intraoperative intravitreal injection of triamcinolone acetonide with phacoemulsification in controlling postoperative inflammation in uveitic patients with cataract.

UVEITIC CATARACT

Incidence of cataract in uveitis

Cataract formation is a common complication of chronic or recurrent uveitis. It is caused either by the inflammation itself, or by the steroid and glaucoma medications (cholinergic agents) used to treat uveitis and uveitic glaucoma. In many forms of uveitis, the incidence of cataract approaches 50% . In Fuchs heterochromic iridocyclitis (FHI),coincident cataract is reported in 77.8% of the cases .The most common type of cataract in uveitis patients is the posterior subcapsular opacity**(Foster and Vitale,2002)** .

Basics for Cataract Formation in Uveitis

Cataract may appear in various clinical forms. Posterior synechiae are often seen with focal areas of anterior capsule necrosis and underlying lens opacities. Fibrin membranes overlying the lens are often accompanied by an opacification under the anterior capsule. Nevertheless, the typical form of complicated cataract seen in patients with uveitis is posterior subcapsular cataract formation. In rare cases, an anterior subcapsular opacity can be observed primarily. Cataract formation at the posterior pole of the lens can be explained by a missing epithelial barrier and by this part of the capsule being the thinnest part of the lens capsule. Inflammatory stimuli or degeneration might induce proliferation of lens epithelial cells (LECs). These abnormal cells produce extracellular basal membrane material and extra-cellular matrix before they degenerate in combination with surrounding lens fibers .The typical progression of cataract depends on the severity of inflammation. In older uveitic patients, the proliferation potential of LEG is reduced and,

therefore, it is difficult to distinguish from senile subcapsular opacity **(Heger etal, 1994).**

Indications and Contraindications of Cataract Surgery in uveitis:

The indications for the treatment of uveitic cataracts differ profoundly between the patients:

1. The major cause for surgery is mostly poor vision. However, the contribution of cataract to visual deterioration must be distinguished from other factors, such as vitreitis, cystoid macular oedema (CME) or amblyopia in children.

2. Fundus examination may be impaired due to the cataract. Cataract extraction may be indicated to judge the abnormalities that are critical for the configuration of the treatment plan, e.g. CME, neovascularisation of retinal vessels, choroidal neovascularization (CNV), retinal detachment or uveal effusion.

3. Vitreous or macular surgery may be necessary, but it may not be safely performed because of dense cataract.

4. In the rare cases of phacoantigenic uveitis, in which the leakage of lens proteins is the cause of inflammation, removal of the lens cures the uveitis.

There is a short list of contraindications against cataract surgery. The presence of active inflammation in the anterior chamber is an absolute contraindication against the operation. Young patient's age, relatively good vision and the advantages of accommodation must be considered **(Roajas and Foster,1996).**

Timing of Surgery

Complete quiescence of inflammation, e.g. 10 cells or less in the slit-lamp high-power field in the anterior chamber, must first be obtained before cataract surgery can be planned. At least 8 weeks of remission of inflammation before surgery are commonly recommended. Surgery should be deferred, if inflammation persists or frequently recurs. The experience of ocular attacks during the previous year may indicate the postoperative course, as has been observed in Behcet's disease, sarcoidosis and JRA-associated uveitis **(Matsuo etal, 2001)**. In these cases, appropriate anti-inflammatory medication must be adjusted first before proceeding with surgery. Low intraocular pressure (IOP), cells in the vitreous and thickening of the choroid may also demonstrate ongoing inflammation.

The issue of amblyopia further complicates the timing of surgery in children, as the surgical success may be negated by irreversible amblyopia, if surgery is delayed too long. However, lens removal with the consequence of loss of accommodation has great impact in young children **(Foster and Rashed,2003)**.

PREOPERATIVE CONSIDERATIONS

Preoperative control of intraocular inflammation:

Except in the removal of a protein leaking lens (in which case immediate surgery is mandatory), success in uveitic cataract surgery greatly depends upon complete abolition of all active inflammation for at least 3 months prior to surgery, and upon the ongoing longitudinal control of inflammation after surgery. This is crucial to avoid damage to ocular

structures essential to good vision, **Foster and Vitale(2002)**recommend administration of supplementary perioperative anti-inflammatory therapy, unless contraindicated. in the form of 1 mg/kg/d of prednisone, a drop of 1% prednisolone acetate eight times a day beginning 2 days before surgery, and an oral nonsteroidal anti-inflammatory agent, such as celecoxib, 100 mg orally twice daily, and a topical nonsteroidal anti-inflammatory agent. such as flurbiprofen (ocufen) four times daily.

As in many previous reports, recent studies have shown good visual outcome in both children and adults when surgery is performed after at least 3 months of no inflammatory signs **(Kadayifcilar etal,2002).** However, in the case of Behcets disease, it has been shown in the first time that the development of ocular attacks of inflammation after cataract surgery is significantly related to the frequency of ocular attacks for the year preceding the surgery. The results of these studies showed that patients with Behcet disease who experienced ocular attacks within a year before surgery are more vulnerable to developing ocular attacks postoperatively. The surgery itself did not increase the incidence of ocular attacks in the long term, and all patients showed good visual outcome. The cataract surgery is not contraindicated in patients with Behcet disease who have experienced ocular attacks in the previous year, but surgery is better postponed until after the period of at least half a year with no ocular attacks to reduce the chance of postoperative attacks.

The value of topical and/or systemic non steroidal anti-inflammatory drugs (NSAID) for the preoperative management of inflammation is not well known. Systemic NSAID cannot be recommended as they can increase the intraoperative bleeding rate.

There is common consept that glaucoma should be stabilized before surgery. The use of miotic drugs before surgery is strongly