Cataract surgery in patients with uveitis

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Cataract is known to develop frequently in eyes with uveitis, with an incidence as high as 50% in cases of Fuchs' heterochromic cyclitis (FHC) and pars planitis.[1,2] Uveitis patients have a turbulent post-operative course with a high incidence of recurrent inflammation and post-operative complications. The following review presents guidelines relating to some of the difficulties in treating these patients. For a more detailed discussion the reader is encouraged to refer to recent texts by Alio and Chinpoint[3] and Lightman and Towler.[4] In this article, patients are divided into 'anterior' and 'posterior' disease groups based on the anatomical location of the main focus of ocular inflammation. The usefulness of a standardised regimen of pre-operative steroids is discussed as this has been proven in patients with a diverse set of uveitis diagnoses.[5,6]

Cataract surgery in eyes with anterior uveitis diagnoses

Patients with anterior disease usually do not need systemic steroid prophylaxis unless these drugs have already formed part of the management of the condition, e.g. for treatment of macular oedema. Those with chronic anterior uveitis (CAU, excluding Fuchs' heterochromic cyclitis), however, whether quiescent or active, should be treated with systemic steroids pre-operatively, unless contraindicated. Patients from the Indian subcontinent with anterior disease demonstrate a higher incidence of macular oedema and should be considered for prophylactic steroid treatment irrespective of their anterior uveitis diagnosis.

In a recent study, 33% of patients in the anterior disease group had previously required systemic steroids and were thus treated with prophylaxis prior to cataract surgery.[6] In this group of patients, 96% of cases demonstrated an improvement in vision (median +4 Snellen lines) with 64% having a visual acuity of 6/12 or better at 6 months. In those with anterior disease, severe uveitis in the first week post-operatively was found to be associated with an increased incidence of macular oedema, and visual acuity less than 6/12 at 6 months follow-up.[6] Patients with FHC (with no steroid prophylaxis) have the least problematic post-operative course and the best visual outcomes.[7,8]

The percentage of cases with posterior capsule opacification (PCO) and subsequently requiring Nd-YAG capsulotomy was highest in patients with acute anterior uveitis. Other authors have reported overall rates of PCO in a heterogeneous group of pseudophakic uveitis patients as 23% (n = 16 eyes; 10/16 proceeded to Nd-YAG)[9] and 7% (n = 27 eyes).[10] More recently Dana *et al*.[11] have reported a rate of 54% over a mean follow-up of 4.3 years and an association between young age and increased incidence of PCO. The percentage of cases developing PCO in our recent study was noted to be 49% (n = 90), with 66% of these requiring Nd-YAG capsulotomy over a mean follow-up of 10 months.[6] PCO is more likely to occur in eyes with persistent inflammatory activity, and is also dependent on the material and design of the intraocular lens, and the degree of contact between the optic and the posterior capsule. PMMA lenses have demonstrated the highest incidence of associated PCO in normal eyes and, since the level of inflammatory activity is higher in eyes with uveitis, perhaps this material is not ideal for use in patients with uveitis.[12,13]

Cataract surgery in eyes with posterior uveitis diagnoses

In contrast to patients with anterior uveitis diagnoses, 97% of patients in the posterior disease group required and were treated with systemic steroid prophylaxis prior to cataract surgery.[6] In this group of patients, 81% of cases demonstrated an improvement in vision (median +4 Snellen lines) but only 46% demonstrated a visual acuity of 6/12 or better at 6 months. In the posterior disease group, a poor visual outcome was noted to be most commonly the result of vision-limiting conditions present pre-operatively.[5,6,14] Patients with pars planitis (with steroid prophylaxis) have the least problematic post-operative course and the best visual outcomes.[6,14,15] All patients with posterior disease should be treated with prophylactic systemic steroids pre-operatively, unless contraindicated.

Suggested management

Pre-operatively, ocular inflammation should be controlled as well as possible for a minimum of 6 weeks.[4,6,9,10] The reduced post-operative inflammation following phacoemulsification

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Received: 15 November 1999
Accepted in revised form:
14 April 2000

suggests that this technique may be more suitable in uveitic eyes undergoing cataract surgery.[16–18] Studies using phacoemulsification have already been reported.[19,20] Immediate post-operative management should include review and discharge with topical steroid (betamethasone, dexamethasone or prednisolone acetate), antibiotic and mydriatic drops in addition to systemic steroids where used. The frequency of topical steroid treatment is dependent on the clinical findings. This may be increased to hourly in complicated cases and especially in eyes which have undergone extensive peri-operative iris manipulation. Fibrin in the anterior chamber is an indication for more intensive topical therapy and prompt use of recombinant tissue plasminogen activator (rTPA, 10 μg), especially if the fibrin occludes the visual axis.[21,22]

The regimen of systemic steroids used for control of pre- and post-operative inflammation varies widely.[14,23,24] A standardised regimen has recently been reported which results in improved control of inflammation in these high-risk eyes.[6] Prednisolone 0.5 mg/kg per day is used for 2 weeks pre-operatively and the dose gradually reduced by 5 mg/day every week (depending on the severity of inflammation and/or bilaterality of the disease), usually starting at the beginning of the second post-operative week.[6] Patients receiving systemic steroids should routinely undergo blood pressure measurement, urinalysis and random blood glucose monitoring at every clinic visit.

The progress of each patient should be carefully monitored in the months following surgery. Treatment options for severe uveitis (defined as ≥ 3+ cells per high-power slit-lamp beam ± fibrin in the anterior chamber) and macular oedema include orbital floor steroid injections and systemic steroids, which should be added or increased according to need. Macular oedema should be diagnosed clinically in the first instance. In cases in which some doubt remains, fluorescein angiography is performed to establish the diagnosis. Although oral acetazolamide may be of benefit in the treatment of macular oedema following cataract surgery,[25] experience has shown it to be of little use in uveitis and the mainstay of treatment for unilateral macular oedema is orbital floor steroid injections (methylprednisolone 40 mg + betamethasone 4 mg). However, in the presence of raised intraocular pressure, bilateral disease or patient preference, systemic steroids should be used. If the patient is already taking systemic steroids at the time of diagnosis of macular oedema, the dose should be increased only if the fundal appearance and reduction in visual acuity are clinically significant or the condition is bilateral.

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