Comment on: Effect of anti-inflammatory regimen on early postoperative inflammation after cataract surgery

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We discussed the study by Erichsen *et al* during the ESCRS journal club on 7th April 2021.[1] The investigators examine an important question regarding the efficacy of peri-operative anti-inflammatory regimens in the control of post-operative inflammation following routine phacoemulsification cataract surgery in uncomplicated eyes. We would like to highlight some points of discussion which are of relevance to the interpretation of the study.

Aqueous flare, measured on post-operative day 3, was presented as the primary outcome measure in the study. However, on trial registration (Clinicaltrials.gov; NCT03383328), macular thickness as measured on OCT imaging at 3-months was presented as the primary outcome measure. If it can be shown that the risk of subclinical cystoid macular edema (CME) varied according to flare which itself differed amongst the treatment groups, this would help to validate the significance of flare on post-operative day 3. Although anterior chamber cell counts were found to vary statistically between the dropless and other treatment groups, the mean cell counts in all groups would be classified similarly as grade 0.5+ by Standardisation of Uveitis Nomenclature (i.e. <6 cells)[2]; the difference may not therefore be clinically significant.

The dropless group did not receive an active post-operative treatment. This may have led to bias in the reporting of symptoms by patients, or in the treatment of patients by clinicians, neither of whom were blinded to treatment allocation. The rate of adverse events in the dropless group at post-operative day 3 appeared high at 53%, and may have occurred, at least in part, as a result of this bias. Sham sub-Tenon's injections may have enabled masking of assessing clinicians, and would also control for adverse effects related to the sub-Tenon's injection itself.

The ESCRS PREMED studies shed light on the efficacy of prophylactic regimens in reducing the risk of CME – the most important sequel of post-operative inflammation. A combination of topical steroid and NSAID were shown to reduce the risk of CME compared to either agent alone in non-diabetic patients undergoing routine cataract surgery.[3] Observations made by Erichsen *et al* further support this conclusion. A useful finding of the study was that initiation of drops pre-operatively did not influence aqueous flare measurements at day-3 after surgery. However, pre-operative NSAIDs have been shown to reduce the risk of CME.[4] This further underlines the importance of examining the association between early post-operative flare and CME.

The findings of this study should not end the pursuit of dropless surgery. The ESCRS PREMED study 2 showed that sub-conjunctival triamcinolone (40mg) at the conclusion of surgery was found to be beneficial in reducing the risk of sub-clinical and clinically significant CME in diabetic patients who also received a combination of topical agents.[5] It is likely that other depot steroid preparations may show efficacy in the control of post-operative inflammation as a dropless strategy, albeit with a risk of raised IOP. In addition to clinical efficacy, cost-effectiveness and patient-reported outcome measures will be influential in determining the optimal peri-operative anti-inflammatory regimen for patients undergoing routine cataract surgery.

References

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