Diclofenac versus Corticosteroids Following Strabismus Surgery: Systematic Review and Meta-Analysis

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Introduction:

Topical corticosteroids have been widely used in the field of ophthalmology for the past 60 years[1]. Multiple adverse effects have been reported, such as raised intraocular pressure (IOP) and cataract development[2]. Diclofenac has been compared with corticosteroids for patients undergoing strabismus surgery in various studies in the literature [3-10] and there is no current metanalysis that collates and evaluates all the published evidence.

Aim:

To compare outcomes of diclofenac versus corticosteroids following strabismus surgery.

Methods:

- A systematic review and meta-analysis as per PRISMA guidelines.
- Primary outcomes included discomfort, chemosis, inflammation, conjunctival gap, IOP and conjunctival injection.
- Secondary outcomes included conjunctival congestion, discharge and drop intolerance.
- Review Manager 5.3 software was used for data synthesis.

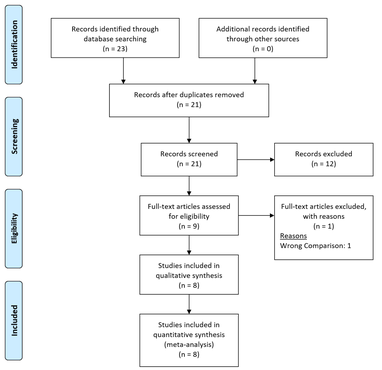


Figure 1: Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) Flow Diagram. The PRISMA diagram details the search and selection processes applied during the overview.

Results:

- Study Sample: Eight studies with a sample of 469 eyes were included.
- Primary Outcomes:
  - At week 1 post-operatively, no statistically significant difference was noted, except for
    - Conjunctival injection (MD = -0.21, CI = -0.40 to -0.01, P = 0.04; figure 4a) favouring diclofenac.
  - At week 2 post-operatively, all primary outcomes significantly favoured diclofenac, namely
    - Discomfort (MD = -0.34, CI = -0.63 to -0.04, P = 0.03; figure 2b)
    - Conjunctival chemosis (MD = -0.16, CI = -0.31 to -0.01, P = 0.04; figure 3b)
    - Conjunctival inflammation (MD = -0.16, CI = -0.29 to -0.03, P = 0.02)
    - Conjunctival gap (MD = -0.17, CI = -0.27 to -0.06, P = 0.002)
    - IOP (MD = -2.53, CI = -3.55 to -1.52, P < 0.00001)
    - Conjunctival injection (MD = -0.30, CI = -0.57 to -0.03, P = 0.03; figure 4b)
  - At week 4 post-operatively, no statistically significant difference was noted.
- Secondary Outcomes:
  - Conjunctival Congestion: improved for dexamethasone day 1 (P = 0.01) & week 2 (P ≤ 0.0001) post-op.
  - Discharge and Drop Intolerance: no statistically significant difference.

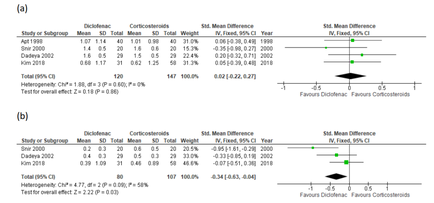


Figure 2: Forest Plots of Diclofenac versus Corticosteroids for Patients Post-Strabismus Surgery – Discomfort at (a) week 1 and (b) week 2.

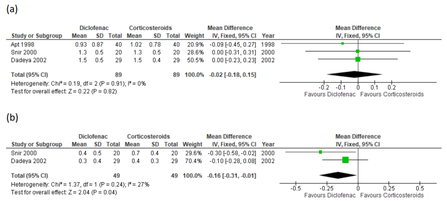


Figure 3: Forest Plots of Diclofenac versus Corticosteroids for Patients Post-Strabismus Surgery – Conjunctival Chemosis at (a) week 1 and (b) week 2.

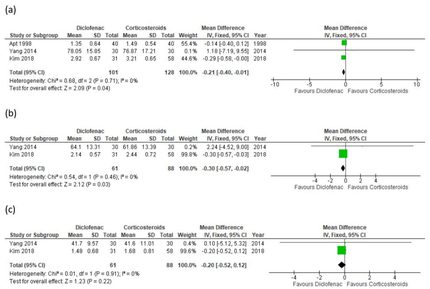


Figure 4: Forest Plots of Diclofenac versus Corticosteroids for Patients Post-Strabismus Surgery – Conjunctival Injection at (a) week 1, (b) week ,2 and (c) week 4.

Conclusion:

The results of the current meta-analysis conclude that diclofenac is comparable to various corticosteroids when used following strabismus surgery. Nevertheless, diclofenac yielded significant improvements in discomfort, conjunctival chemosis, inflammation, conjunctival gap, IOP and conjunctival injection mainly at 2 weeks post-operatively. Further evaluation of diclofenac is suggested to assess its effectiveness as an alternative to corticosteroids following strabismus surgery.

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