A Comparison of the Clinical and Cost-Effectiveness of Multiple Drop versus Separate Postoperative Drop Use after Cataract Surgery

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CONFLICT OF INTEREST

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PURPOSE

- To compare the efficacy and cost-effectiveness of a combination postoperative cataract drop (Multidrop) to that of separate postop cataract drops in patients undergoing cataract surgery

METHODS

- This was a retrospective chart review comparing the outcomes after cataract surgery of patients using either a multidrop or separate postop drop treatment
- All patients had at least 6 weeks of postop follow-up
- Postoperative regimens were as follows:
  - Multidrop patients used a Multidrop (containing moxifloxacin, BromSite®, and Pred Forte®) QID for 2 weeks then BID for 2 weeks
  - Separate drop patients were on ofloxacin QID for 1 week and prednisolone acetate 1% TID for 10 days, then BID for 10 days, then QD for 10 days and BromSite® QD for 3 weeks

METHODS (continued)

- Patients with pre-existing macular pathology (macular scarring or edema) were excluded from this study
- Patient in each group were evaluated postoperatively for:
  - postop pain
  - keratopathy
  - prolonged/recurrent inflammation
  - endophthalmitis
  - macular edema
  - rise in IOP (>20 mmHg) experienced at least 1 week postop

RESULTS

Fig 1. Comparison of postoperative effects between different drop treatments

	Multidrop (n=53)	Separate Drops (n=53)
Endophthalmitis	0	0
Inflammation	3	2
IOP rise >20 mmHg	0	2
Keratopathy	0	0
Macular edema	0	2
Pain	0	0

**These differences were found to be not statistically significant ($p > 0.05$)*

RESULTS: POSTOPERATIVE INFLAMMATION

- 2/52 (3.8%) patients in the non-multidrop group and 3/52 (5.8%) in the multidrop group experienced postop inflammation.
- Most were due to rebound iritis after stopping drops
- 1 patient in the multidrop group had 1+ cell and fibrin at 1 week so was switched to Durezol®
- All cases of inflammation resolved after restarting and tapering steroid drops

RESULTS (continued)

- 2/52 (3.8%) in the non-multidrop and zero in the multidrop group had postop macular edema
- 2/52 (3.8%) patients in the non-multidrop group and zero in the multidrop group had an increase of IOP due to steroid response
  - All IOP increases were resolved after adding glaucoma medications while on the postoperative cataract drops and successfully discontinued after the drops were tapered off
- There were no instances of pain, keratopathy, or infection found in either group
- Differences in instances of inflammation, macular edema, rise in intraocular pressure were found to be not significant ($p > 0.05$)

DISCUSSION

- The cost of postoperative medications after cataract surgery constitutes a great economic burden to patients and insurers (1)
- In addition, previous studies have noted that patient compliance may be higher for the multidrop treatment than the separate drop treatment as only one drop is required postoperatively rather than three drops with differing tapering regimens (2,3)

DISCUSSION (continued)

- We found that using the multidrop was a much more economical alternative to separate drops after cataract surgery
- According a study by Zafar et al. conducted in 2016 (4)
  - For separate drop treatment using moxifloxacin, Bromfenac sodium, and prednisolone acetate 1%:
    - The cost of the BRAND version of the medications totaled $489.50
    - The cost of GENERIC version of the medications totaled $321.10
- Meanwhile, the cost of multidrop treatment purchased by a compounding pharmacy is $80 (5)

CONCLUSION

- The multidrop treatment is as effective as the separate drop treatment in mitigating postoperative symptoms of cataract surgery
- The multidrop treatment is much less expensive than the separate drop treatment consisting of either brand name or generic drugs
- The multidrop treatment is a viable and more economical treatment for patients after cataract surgery. In addition, a benefit to using the multidrop treatment is higher patient compliance.

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