

## Assessing Cataract Patient Understanding of Proper Eyedrop Instillation in Chennai, India

Sir,

Proper knowledge, attitude, and practice of eyedrop application are all necessary for managing eye diseases.<sup>[1]</sup> Most research has centered on these areas, with several studies finding that better instruction yields greater efficacy. The effectiveness of eyedrops is determined by proper technique and scheduled dosing. Female gender, younger age, lack of education, living alone, and severe eye disease were all found to correlate with improper technique and inferior adherence to the regimen.<sup>[2-5]</sup> The Chennai Glaucoma Study (2009) found that, in addition to a high incidence of cataracts, locals lacked awareness of ocular health.<sup>[6]</sup> Proper use of medication is a high priority in areas like Chennai, India, that are vulnerable to eye disease and infection.

The objective was to assess cataract patient understanding of prescribed eye medication immediately following prescription of the regimen. Specifically, we investigated whether certain sociodemographic factors correlate to a high or low level of understanding of proper eyedrop use. The Tel-Aviv University Institutional Review Board approved this study.

Between July 18, 2016, and August 8, 2016, a sample of 50 preoperative cataract patients was recruited from outreach camps for vision screening. The assessment was performed before surgery. An optometrist provided detailed verbal instruction to the patient regarding proper postoperative eyedrop usage. If the drops were to be administered by an attendant or family member who was present with the patient, they too were included in the instructions and evaluation. Subsequently, an eight-item standardized questionnaire [Table 1] was used to assess understanding. Administration was assessed using a validated protocol for analyzing eyedrop instillation.<sup>[2]</sup> The interview was scored out of a possible eight. Sociodemographic factors (age, gender, education, residence, poverty score, administration by self/other, previous use) were analyzed for association with understanding the prescribed regimen and proper instillation.

The mean knowledge test score was  $5.5 \pm 2.2$ , and the mode was 7 (36% of participants). Variance in mean knowledge test scores was not observed among most sociodemographic variables. For the variable of administration, there was a difference in the mean test scores between those who self-administered drops and those who had another person administer them. Participants that had someone else administer the eyedrops performed significantly better than those self-administering (self-use: 4.6, instillation by other: 5.9,  $P = 0.05$ ). Levene's test for equality of variances confirmed that there was a difference in variances within the sample ( $P = 0.03$ ). Participants who self-administered were more likely than those with another administrator to have below

**Table 1: Knowledge test questionnaire (values represent percentage of participants,  $n=50$ )**

Question	Correct
1. For how many weeks should you be using eyedrops after your operation?	76
2. How many times a day should you use eyedrops during the first week after your operation?	74
3. How many times a day should you use eyedrops during the second week after your operation?	64
4. How many times a day should you use eyedrops during the third week after your operation?	68
5. How many times a day should you use eyedrops during the fourth week after your operation?	72
6. How many drops should be used each time?	74
7. Why are eyedrops necessary?	38
8. Can you show me how you would use your eyedrops?	84

average knowledge test scores (odds ratio: 4.18, 95% confidence interval: 1.18, 14.82,  $P = 0.03$ ). When assessing for proper use, 31% (5/16) of self-administrators incorrectly used the drops, while 9% (3/34) of those with another administrator used the drops incorrectly. In addition, question 7, which asked the reason eyedrops are necessary, was the question that participants answered incorrectly most frequently (31/50 or 62%). This was evident in all sociodemographic variables, including the variable of administration (10/16 or 63%).

To our knowledge, this was the first study to assess cataract patients in southern India for the underlying determinants of understanding prescribed instructions before initiating instillation outside of a clinical setting. The key finding was that self-administration was associated with a lack of understanding of the regimen. Identification of this risk factor is useful for targeted patient education that can be introduced in office to diminish risk. Self-administrators are often older and live alone (mean age  $64 \pm 16$  years) and are likely unaware of poor understanding and technique. Participants in the study were also found to lack the understanding as to why the eyedrops were prescribed. We surmise that many are under the erroneous impression that drops are meant to alleviate postoperative discomfort and that they may discontinue use when symptoms resolve. Careful instruction is a major predictor of effective use and will ensure patient adherence to and effective use of eyedrops.<sup>[7]</sup>

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### Conflicts of interest

There are no conflicts of interest.

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