



Toric and multifocal lens utilization independent of patient cost and physician remuneration at a single institution

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ABSTRACT

Purpose: To determine if the rates of toric and multifocal intraocular lenses (IOLs) are affected by patient cost or physician reimbursement.

Methods: At Naval Medical Center San Diego (NMCS D) there is no increased patient cost or physician reimbursement for toric or multifocal IOLs. The medical records of all patients who underwent cataract surgery with IOL implantation at NMCS D between 2013 and September 2016 were reviewed. The type of IOL implanted was identified. The rates of toric and multifocal IOL usage were compared to the rates reported in the 2016 American Society of Cataract and Refractive Surgery (ASCRS) Clinical Survey.

Results: The inclusion criterion was met for 2585 cataract surgeries. The percentage of toric IOLs at NMCS D in 2016 was 10%. If the patients that received 3 piece or anterior chamber IOLs were excluded, the percentage of single piece IOLs that were toric was 12%. The percentage of multifocal IOLs at NMCS D ranged from 0.8% in 2013 to 0.3% in 2016. The rates of toric and multifocal IOLs reported in the ASCRS clinical survey were 10% and 9%, respectively.

Conclusions and Importance: The rate of toric IOLs usage was not significantly affected by patient cost or physician reimbursement. The rate of multifocal IOLs usage was significantly lower at NMCS D.

1. Introduction

Toric intraocular lenses (IOLs) are a method of reducing astigmatism after cataract surgery to improve uncorrected visual acuity. Similarly, multifocal IOLs can be used to decrease spectacle dependence. Both of these IOLs, however, often have an increased out of pocket cost for the patient and a similar increase in revenue for the surgeon, ranging anywhere from several hundred to several thousand dollars. A unique feature of Naval Medical Center San Diego (NMCS D) is that these lenses are provided without additional cost to the patient and the surgeon receives no additional income for their utilization. We set out to determine if the rate of usage of toric and multifocal lens is affected by the elimination of these two factors.

2. Materials and methods

Institutional Review Board of NMCS D approval was obtained. The medical records of all patients who underwent cataract surgery with IOL implantation at NMCS D between 2013 and September 2016 were reviewed. The type of IOL implanted was identified.

3. Results

The inclusion criterion was met for 2585 cataract surgeries. The percentage of toric IOLs at NMCS D increased from 6% in 2013 to 10% in 2016 (Fig. 1). If the patients that received 3 piece or anterior chamber IOLs were excluded, the percentage of single piece IOLs that were toric was 12%. The percentage of multifocal IOLs at NMCS D ranged from 0.8% in 2013 to 0.3% in 2016 (Fig. 2).

4. Discussion

Toric IOLs first received Food and Drug Administration approval in 2005.¹ After their introduction, the rate of their usage within our department has steadily increased. The rate of toric IOLs at NMCS D in 2016 was 10%, which is the same as the reported rate in the 2016 American Society of Cataract and Refractive Surgery (ASCRS) Clinical Survey² (Fig. 3). This suggests that the rate of toric IOLs was not significantly affected by financial factors.

Our study demonstrated a less than 1% percent rate of usage of multifocal IOLs at NMCS D, compared to the 9% presbyopia correcting IOLs rate reported in the 2016 ASCRS Clinical Survey² (Fig. 4). We

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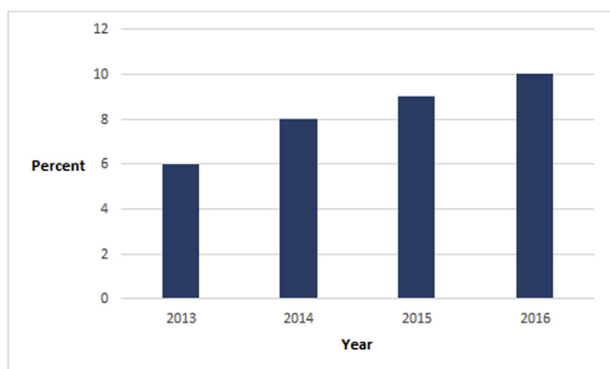


Fig. 1. Percentage of Toric Intraocular lens (IOLs) by year at Naval Medical Center San Diego (NMCS D).

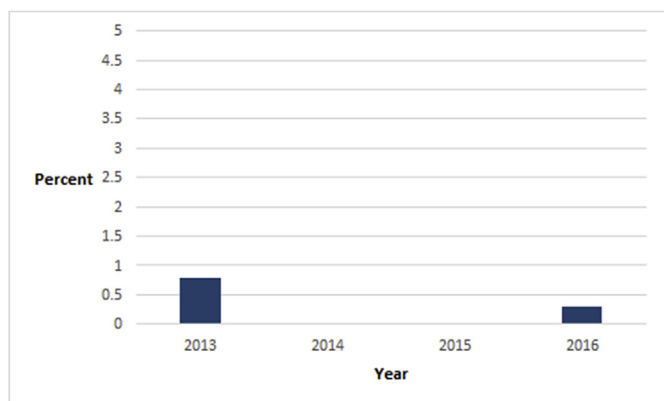


Fig. 2. Percentage of Multifocal IOLs by year at NMCS D.

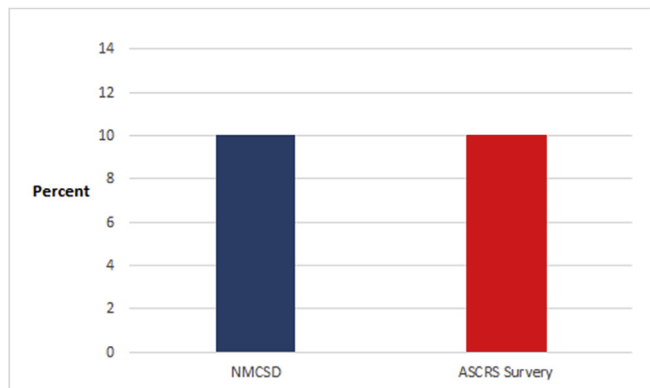


Fig. 3. Percentage of toric IOLs in 2016.

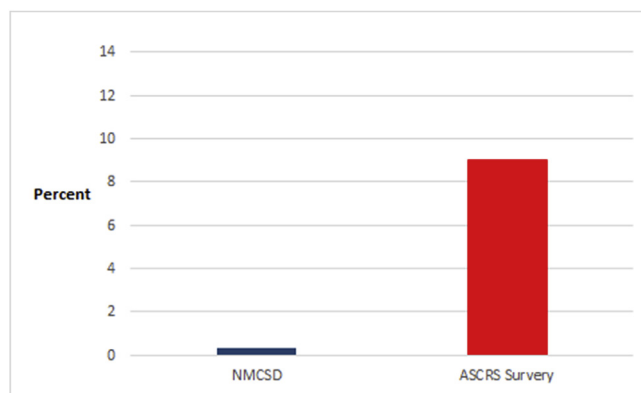


Fig. 4. Percentage of multifocal IOLs in 2016.

postulate two major reasons for the reduction is the removal of the influence of physician reimbursement and the amount of subspecialty patients in our department.

Previous studies have demonstrated that reimbursement methodology influences rate of cataract extraction, with fee for service having a higher rate than a prepaid method.³ Similar findings can be seen in other specialties.⁴ Our study suggests that the rate of usage of multifocal IOLs may be influenced by financial factors. The same effect was not seen with toric IOLs.

Several confounding factors may have influenced our study. NMCS D is a tertiary referral center with a significant proportion of subspecialty patients who may not be candidates for toric or multifocal lenses. All subspecialties will place toric lens for regular astigmatism, though the exact threshold of astigmatism varies by provider. All IOL options are discussed with each patient, and if appropriate, the patient may be

referred within the department to another provider who is more comfortable with the type of lens the patient selected. Another factor that could confound our result is that the ASCRS clinical survey is self reported data which may be subject to recall bias. In contrast, the data from our study is from chart review which is more accurate than self reporting. Additionally, the ASCRS survey did not separate private practices versus academic centers, which may have different rates of toric and multifocal lens usage. Finally, the out of pocket cost to patients at other institutions may cause some patients to select a traditional monofocal IOL, thus lowering the rate of toric and multifocal usage.

Our study is unique in that it provides the rate of usage of toric and multifocal IOLs without the influence of patient out of pocket cost or physician reimbursement; this provides a baseline for comparison with other practices. The concordance between the rate of toric lens in our study and in the ASCRS survey likely reflects the prevalence of astigmatism that surgeons think will benefit from a toric IOL and was not influenced by financial factors. Further study is required to separate the effect of physician reimbursement from provider preference on the selection of multifocal lens.

Patient consent

Consent to publish the case report was not obtained. This report does not contain any personal information that could lead to the identification of the patients.

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Conflicts of interest

The following authors have no financial disclosures: TDT, JWS.

Authorship

All authors attest that they meet the current ICMJE criteria for Authorship.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://>

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