How good are we at choosing the correct three-piece intraocular lens in patients with posterior capsular rupture?

S. Khan, S. Mamtora, S. Mohammed, J. Ferris
Cheltenham General Hospital, Sandford Road, England

Introduction

- Insertion of a 3-piece lens into the ciliary sulcus is often required following cataract surgery complicated by posterior capsular rupture (PCR).
- This moves the effective lens position more anteriorly and necessitates a recalculation of the intraocular lens power
- There are various ways of recalculating the lens power for placement in the ciliary sulcus e.g. rule of 9s, Dr-Hill.

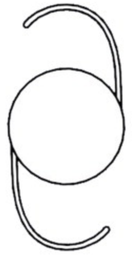


Figure 1: Example of 3-piece lens used locally

Methods

- A retrospective audit of all patients undergoing cataract surgery between 2015-2020 was performed using Medisoft Electronic Medical Record (figure 2).
- Data was analysed as percentages of patient in three categories of accuracy based on dioptres from adjusted target lens power using local guidelines (doctor-hill.com).

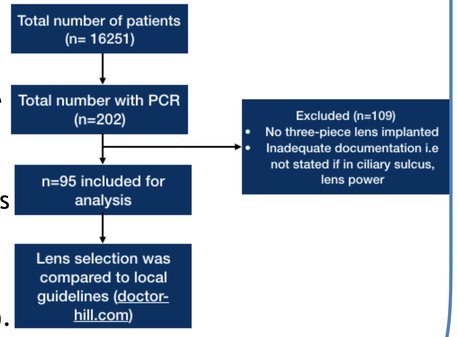


Figure 2: Study methodology

Results

- n=95
- Correct lens was selected in 20% of patients (n=19)
- Selected lens was within 0.5D of recommended suclus lens power in 55% patients (n=52)
- Range of selected IOL power from recommended IOL was between -1.5 and +1.5D.
- Choice of lens was not affected by grade of surgeon with a similar range of accuracy across trainee grade surgeons and consultant surgeons.

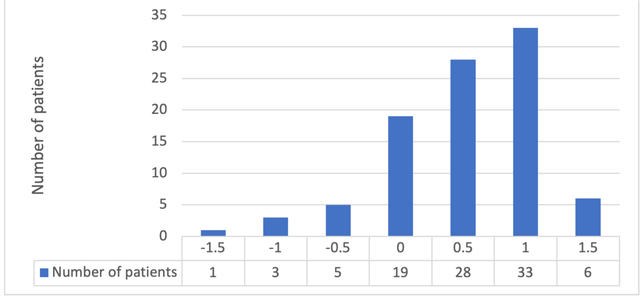


Figure 3: Difference between correct and selected IOL power

Discussion

- The widespread variation in lens choices from the recommended lens identifies a need for additional learning resources to improve lens choice and clincians' understanding
- At present there are no RCOphth guidelines for adjusting the power of IOL when placed in the sulcus. Development of standardised guidelines would help reduce variation in practice.

Discussion continued

- This was a comprehensive audit from a single institution using Medisoft EMR for all patient interactions, providing a robust dataset.
- Main limitation to data collected by EMR human error during datainput.
- Limitations to this retrospective audit include:
  - Limited documentation of reasons for lens choice in particular when lens does not correspond to the recommended power
  - Refractive outcomes not examined in this dataset
  - 109 patients were excluded with the majority having secondary surgery an no primary lens implantation at initial surgery.

Conclusions

Following the results of the audit, a working group was formed to develop an internally validated clinical decision tree to assist clinicians in the correct selection of 3-piece IOLs in patients with posterior capsular rupture (Figure 4).

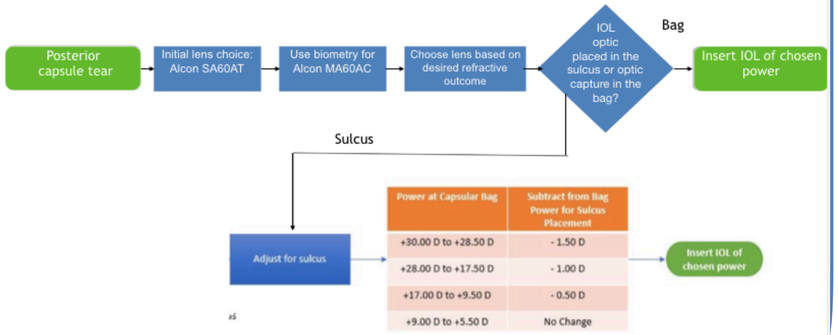


Figure 4: Decision tree for correct selection of IOL power