THE ROLE OF REFRACTIVE LENS EXCHANGE

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REFRACTIVE LENS EXCHANGE (RLE)

Removal of the ***transparent*** crystalline lens with IOL implant to correct ametropia and/or presbyopia

1. For **high ametropia** where other less invasive procedures are contraindicated
2. For **presbyopia** with/without ametropia (PreLEx)

RLE FOR HIGH AMETROPIA - KEY POINTS

- Rehabilitating, not properly refractive surgery
- Plano is not primary mandatory target- Reducing high ametropia. Reaching plano can be challenging
- Patients may be young(er)
- Procedure not designed to correct presbyopia, which eventually can be done. Multifocal IOLs not routinely implanted
- Quality of vision same or better than preop

RLE FOR PRESBYOPIA - PRELEX

PreLEx= Presbyopic Lens Exchange

- Refractive procedure to drastically reduce/eliminate the need of glasses at all distances
- Always performed in presbyopic patients
- Multifocal or other presbyopia- correcting IOL always implanted
- Target plano in all cases

PRELEX - FEATURES

1. Eyes with preexisting ametropia (usually mild to moderate, sphere with/without astigmatism) – more widely accepted
2. Eyes plano with presbyopia only – still controversial

PRELEX - MAJOR CHALLENGES

1. Spectacle independence
2. Quality of vision care
3. Complications

PRELEX – SPECTACLE INDEPENDENCE

- Presbyopia- correcting IOL
  1. Multifocal IOLs (trifocals in particular)
  2. EDOF (Intermediate to distance)
  3. Accommodative (??)
- Right-on-target refractive outcome
  - Accurate biometry and keratometry
  - Appropriate formula
  - Cylinder management
  - Customize surgical factor(s)
  - Surgical touch-ups

PRELEX – QUALITY OF VISION CARE

- Multifocal IOLs provide higher spectacle independence
- EDOF provide less quality of vision issues
- Accommodative IOLs provide less predictable spectacle independence

PRELEX – COMPLICATIONS

All those associated with lens removal surgery, in particular

- CME
- Inability of implanting a presbyopia-correcting IOL
- Tear film instability
- PCO
- Vitreous floaters, PVD

PRELEX – IOLS POSSIBLE OPTIONS

- Trifocal IOLs – Best option for spectacle independence
  - More likely to induce haloes and night vision disturbances
  - Very sensitive to refractive outcome. Must provide plano
- EDOF IOLs – Best compromise between spectacle independence and quality of vision
  - Reading at near may be challenging
  - Very forgiving as to refractive outcome
- Bifocal IOLs – Best near option
  - Drop at intermediate
  - Blending two add powers leads better results

IDENTIFYING BEST THE OPTION

- Understand expectations
  - Questionnaires
  - Surveys
  - Chair time and conversation
  - Relatives and friends

IOLS CATEGORIES – PERSONAL EXPERIENCE

EDOF IOLs	Trifocal IOLs	Bifocal IOLs
Younger patients	All ages	Older patients
Taller patients	All patients	Shorter patients
Intermediate	Full range	Reading
Active	Active	Sedentary
Heavy driving	Driving	Occasional driving
PC, laptop, tablet	PC, Tablet, smartphone	Smartphone
Few book reading	Lot book reading	Lot book reading

INDICATIONS FOR EDOF IOLS (47.5%)

- Patients concerned about quality of vision but still seeking for some spectacle independence
- Patients with significant activities at intermediate
- Younger active and dynamic patients
- Taller patients

SETTING POSTOPERATIVE EXPECTATIONS

EDOF IOLs

- "You will experience spectacle independence as per your needs, but you may/will need glasses for reading at close distance"
- "Light illumination will help you reading without spectacles"
- "Your vision quality will be almost uncompromised and you will experience almost no glare and haloes at night"

INDICATIONS FOR TRIFOCAL IOLS (47.5%)

- Patients seeking greatest spectacle independence and likely to accept slight compromises in terms of quality of vision
- LVC enhancements not a problem
- Active and dynamic patients

SETTING POSTOPERATIVE EXPECTATIONS

Trifocal IOLs

- "You will experience an almost full range of spectacle independence. You may need light to read, or glasses just when reading under dim light conditions"
- "You may experience some glare and haloes at night. It's normal and intended to give you the best performances in terms of spectacle independence"

INDICATIONS FOR BIFOCAL IOLS (5%)

- Previously myopic patients in the range -2.50 to -4.00 D who were used to read without spectacles
- Patients really seeking for near distance spectacle independence with few intermediate activities

SETTING POSTOPERATIVE EXPECTATIONS

Bifocal IOLs

- "You will experience a wide range of distances without wearing glasses, with a very good reading vision. You may experience a drop at intermediate, which may require spectacles"
- "you may need light to read small prints, or glasses just when reading under very dim light conditions"
- "You may experience some glare and haloes at night, decreasing with time but in some cases they may never fully disappear"

REFRACTIVE LENS EXCHANGE – SUMMARY

For high ametropias, any age

- Rehabilitative procedure, no other surgical options available
- Effective, safety related to retinal status

REFRACTIVE LENS EXCHANGE – SUMMARY

For any ametropias in the presbyopic age (PreLEX)

- Refractive surgical procedure, plano mandatory
- Success is given by
  - Spectacle independence
  - Quality of vision
  - Complications and side effects
- Gaining consensus thanks to greater IOLs availability
  - Better performances, greater patients satisfaction
  - Less quality of vision problems