Successful Management Of Your Cataract Patients

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Trends In Cataract Care

- Aging population
- Innovations in surgery
- IOL technologies: modified prolate, toric, presbyopia-correcting (accommodative, multifocal), light adjustable
- Comanagement issues and guidelines - patient choice
- Higher patient expectations for visual outcome
- “Standard” Cataract Surgery vs “Custom” Cataract Surgery
The Importance of Public Perception

- Public perception matters in ophthalmic political issues.
- “The public is the newest ally in ophthalmologists’ battle to limit optometric scope of practice.” (Dunbar Hoskins, MD)
- People are confused about who is doing eye care and want to know who is doing what to them.
The Importance of Public Perception

• “Maintaining patients’ trust is perhaps the most important issue facing ophthalmologists today.” (Susan Day, MD)

• Ophthalmologists are in an age of increasing accountability as the public notices and questions ophthalmologists’ relationships with industry.
Pre-Operative Cataract Care
Special Instrumentation

- Glare testing
- Contrast acuity testing
- Potential acuity testing
- Corneal topography
- A/B scan
- IOL Master
- Endothelial cell counts
- Pachymetry
When Is A Cataract “Visually Significant”? 

Refractive Considerations

• Astigmatism - in general, pre-operative and post-operative corneal astigmatism are similar; consider placement of incision, toric IOL, LVC post-CE

• Anisometropia - 2 D or less difference in the vertical meridian

• Discuss target refractive endpoint

• Discuss standard vs toric vs presbyopia-correcting IOL options
Post-Refractive Effective K Calculations

• Historical Method
• Contact Lens Method
• Computerized Topography Method
Small Pupil and Floppy Iris Syndrome

- Cardura - doxazosin
- Flomax - tamsulosin
- Hytrin - terazosin
- Minipress - prazosin
- Uroxatral - alfuzosin
Other Considerations

- Pediatric cases
- Secondary IOLs
- Traumatic cataracts
- Subluxated lenses
- IOL repositioning
- Combined procedures (keratoplasty, trabeculectomy)
Controversies In Cataract Surgery

- Anesthesia: retrobulbar, peribulbar, topical
- Incision: mini-scleral tunnel, clear corneal
- IOL: PMMA, silicone, acrylic
The Challenge: Providing the Best Visual Outcome

- Accurate IOL power calculation
- Best IOL material and type
- Proper centration/orientation of IOL – expert surgery
- Determining other visual conditions
IOL Technologies

- Tecnis (AMO)
- Staar Toric (Staar Surgical Co.)
- AcrySof IQ Toric (Alcon)
- Crystalens AO (B&L)
- Synchrony (Visiogen Inc.)
- ReSTOR (Alcon)
- Tecnis Multifocal (AMO)
- Light Adjustable Lens (Calhoun Vision)
Tecnis Modified Prolate IOL

- Modified prolate IOL with negative spherical aberration, unlike the positive spherical aberration of a spherical IOL, compensates for the positive spherical aberration of the cornea so that light focuses on a single image point, reducing net spherical aberration to nearly zero.
Standard IOL

Tecnis ZA9003

- Optic design with modified prolate anterior surface to mimic “youthful” lens
- Anterior and posterior edge design
  - Decreased incidence of PCO
  - Increased dysphotopsias
- Increased contrast sensitivity
Toric IOLs

• Staar Toric – silicone plate haptic
• Alcon AcrySof IQ Toric – acrylic 3 piece; 1.50 D, 2.25 D, 3.00 D cylinder powers (in IOL plane), new aspheric design
• Recently-added AcySof IQ Toric IOL powers: 3.75 D, 4.50 D, 5.25 D, 6.00 D
Acrystar IQ Toric IOL

Seven powers available:

- 1.50 D IOL corrects 1.0 D of astigmatism at corneal plane
- 2.25 D IOL corrects 1.5 D
- 3.00 D IOL corrects 2.0 D
- 3.75 D IOL corrects 2.5 D
- 4.50 D IOL corrects 3.0 D
- 5.25 D IOL corrects 3.5 D
- 6.00 D IOL corrects 4.0 D
AcrySof IQ Toric IOL

- Aspheric, acrylic, 3-piece design
- Yellow tint
  - Filters light in the 400-475 nm wavelength range
- Modified haptic design and adhesive nature of IOL material helps ensure stability within the capsule
- Can make explantation more difficult
AcrySof IQ Toric IOL: Clinical Results

• Excellent rotational stability within the capsular bag
• Significantly reduced absolute residual refractive cylinder
• Significantly improved uncorrected visual acuity at distance
• Increased spectacle freedom due to significantly improved distance vision
Perfection vs The Quest For Perfection

• There is no “perfect” IOL material
• There is no “perfect” IOL design
• There is no “perfect” patient

All IOLs have pros and cons and all variables need to be considered when selecting an IOL for your patient.
A Good Rule of Thumb:

In the majority of cases the patient’s pre-op corneal astigmatism will be a very good predictor of the patient’s post-op residual astigmatism.
Toric IOLs: Who Is An Ideal Candidate?

- Regular corneal cyl between 1.00 – 4.00 D
- Someone who is interested in *decreasing* their dependency on their glasses
- Realistic expectations
- Normal ocular health
Who Isn’t?

- Progressive corneal disease
  - e.g. keratoconus
- Poor zonules
- Flomax
- Maculopathy, optic neuropathy
- Amblyopia
I’ve never had astigmatism before...
My doctor didn’t tell me I have astigmatism...
What is astigmatism?
What else do you see?
A brief discussion with your patient will increase their confidence in you...

• “Dr. Brown explained to me that...”
• “My doctor already told me I have astigmatism...”
• “So, do you agree that I have astigmatism...”
Post-Operative Cataract Care

- Uncomplicated post-operative course
- Early emergent post-operative complications
- Early urgent post-operative complications
- Intermediate to late post-operative complications
Uncomplicated Post-Operative Course Visits and Procedures

• First visit (one day) - Hx, VA, IOP, external, SLE, fundus prn, Rx meds
• Second visit (one week) - Hx, VA, MR, IOP, SLE, fundus prn, Rx meds
• Third visit (one month) - Hx, VA, MR, IOP, SLE, DFE, Rx meds prn
• Extended follow-up visits prn (3 or 6 mo)
• YAG capsulotomy
Dysphotopsias
Optic Edge Design

• Square Posterior Edge
  – Limits migration of lens epithelial cells
  – Less incidence of PCO
  – Acrylic material: very biocompatible, higher index of refraction, dysphotopsias
Early Emergent
Post-Operative Complications
Severely Elevated IOP

• Open Angle: inflammatory hyphema
• Angle Closure: pupillary block malignant glaucoma
Ocular Hypotony With Flat Anterior Chamber

• Wound leak vs ciliary body shutdown: Seidel testing to differentiate
• Choroidal detachment secondary to choroidal effusion
Early Emergent Post-Operative Complications

- Severely elevated IOP
- Ocular hypotony/wound leak with flat anterior chamber
- Endophthalmitis
- Vitreous to wound, iris prolapse
- Retinal break / detachment
- IOL dislocations
Early Urgent
Post-Operative Complications
Early Urgent Post-Operative Complications

• Elevated IOP (possibly steroid-induced)
• Hyphema
• Wound leak with well-formed AC
• Retained lens material - cortical, nuclear
• IOL malpositions - decentration, pupillary capture
Early Urgent
Post-Operative Complications

• Diplopia
• Ptosis
• Corneal edema: epithelial stromal striate
Intermediate To Late Post-Operative Complications
Intermediate To Late Post-Operative Complications

• Cystoid macular edema (pseudophakic CME)
• Persistent iritis
• Corneal decompensation (pseudophakic bullous keratopathy)
• Glaucoma
Intermediate To Late Post-Operative Complications

- Diplopia - r/o vascular, mass, myasthenia; consider neurological consult
- Ptosis - determine etiology and stability
- Retinal detachment
Case 1

- **S/P:** CE/PC IOL OD x 1 day
- **CC:** Vision slightly blurred, mild discomfort
- **DVA (sc):** 20/40 ph 20/25
- **TApp:** 0 mm Hg (Goldmann)
- **SLE:**
  - Cornea: 1+ endothelial folds, “waffle” pattern
  - AC: 75% formed, 1+ cells and 1+ flare
  - Wound: + Seidel
Management of Wound Leak

• If AC flat, refer for anterior chamber reformation & wound suture

• If AC well-formed or slightly shallow
  – Discontinue corticosteroid
  – Continue antibiotic
  – Consider topical aqueous suppressant & eyeshield
  – Consider wound suture at 1 week
Ocular Hypotony

• Wound leak vs. ciliary body shutdown
  – Seidel testing to differentiate

• Choroidal detachment $2^0$ to choroidal effusion
  – Typically monitored unless visually threatening or “kissing” choroidals
  – Resolution as IOP increases
  – r/o RD
Case 2

- **S/P:** CE/PC IOL OS x 1 day
- **CC:** Very hazy and fluctuating vision upon awakening
- **VA(sc):** CF @ 3 ft ph NI
- **TApp:** 10 mm Hg (Goldmann)
- **SLE:** See next photo
- **Fundus:** red light reflex; difficult view of ONH, vessels, macula
Hyphema

• Risk factors
  – Posterior synechiae
  – Surgical manipulation of iris tissue
  – Iridectomies
  – Anticoagulants (ASA, Coumadin, Plavix)
  – Iris neovascularization
  – Fuchs’ heterochromic iridocyclitis

• Maintaining anticoagulants prior to surgery is supported from a risk-benefit standpoint.
Hyphema

Management

• Continue antibiotic (1 drop q.i.d.), increase topical steroid (1 drop q 2h)
• Antiglaucoma drop prn
• Avoid vigorous activity
• Sleep with head slightly elevated
• Avoid unprescribed anticoagulants
• Follow up in 3 – 5 days
• Compassionate reassurance
Case 3

- Hx: S/P: CE/PC IOL OS x 8 weeks
- CC: Blurred central vision over past week in left eye
- BCVA: 20/70 SPH: NI
- SLE: 1+ PCO, trace cells/flare
- Fundus: vitreous/ONH/vessels nl; macular thickening with small yellow spots at fovea
Clinical Detection of Macular Edema

• Fundus contact vs. non-contact lens
• Thin slit beam
• Bright illumination
• Narrow angle (10 to 20 degrees) between slit beam and microscope
• OCT
Cystoid Macular Edema (CME)

• Pseudophakic Macular Edema: leakage from perifoveal capillary bed, often in petalloid pattern; disc leakage possible

• Diabetic Macular Edema: leakage from microaneurysms, rarely in petalloid pattern; no disc leakage
Pseudophakic CME

Management

• Monitor
  – High rate of spontaneous resolution

• Pharmacologic therapy
  – Topical, periocular, intravitreal, oral corticosteroids
  – NSAIDs

• Surgical therapy
  – Anterior vitrectomy
  – YAG laser procedure
Management of Case 3

- 1% Prednisolone Acetate 1 drop q 4h OD, Acular 1 drop q 4h OD
- Tapering of drops after 7 weeks, over next 4 weeks; at 11 weeks BCVA = 20/40 and SPH = 20/25
- YAG posterior capsulotomy