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INTERNATIONAL CONGRESS OF THE
EGYPTIAN OPHTHALMOLOGICAL SOCIETY
EOS 2023

Rejection risk assessment and visual rehabilitation in keratoplasty

By

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2023

OBJECTIVES

- I. To know the necessary postoperative therapeutic regimen after a penetrating or lamellar keratoplasty.

II. To understand the usual visual rehabilitation process after a keratoplasty procedure.

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I. POSTOPERATIVE THERAPEUTIC REGIMEN

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There are available many different regimens regarding the preferences of each surgeon, so these guidelines may be adjusted and they should not be considered as fixed rules.

Rejection

- Any flare up of inflammation or increase in graft edema (often apparent as blurring of vision to the patient), in the absence of an intercurrent unrelated problem, should be treated as graft rejection.

1. **Endothelial**: the most common type (PK: 8-37%; DALK: Absent)

- KP´s, Khodadoust line, oedema

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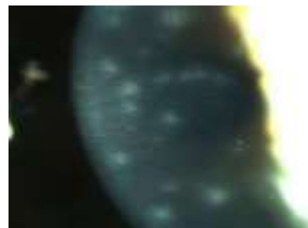
2. Stromal

- **Uncommon type.**
- **Possible in DALK.**
- **Stromal edema.**
- **Stromal infiltrates.**
- **Progressive deep NV´s.**

3. Epithelial:

- **Early post-op (1-13 months).**
- **Rate: 10%.**
- **Subepithelial infiltrates.**
- **Possible in DALK.**



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I. POSTOPERATIVE THERAPEUTIC REGIMEN

Preoperative risk level evaluation:

Watson et al. scale

Each previous rejected graft	1 point
Each quadrant with stromal neovascularization	1 point
Each quadrant with anterior synechiae	1 point
Preoperative glaucoma	1 point
HSV keratitis	2 points
Chemical injury or LSCD ≥2 quadrants	4 points

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Preoperative risk level evaluation:

Grade 0: No points, low risk of rejection.

Grade 1: 1 point, low-moderate risk.

Grade 2: 2 points, moderate risk.

Grade 3: 3 points, high risk.

Grade 4: 4 points, very high risk.

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I. POSTOPERATIVE THERAPEUTIC REGIMEN

Low risk (Grade 0):

- **4th generation Fluorquinolone (Gatifloxacin or Moxifloxacin) eye drops** 4 times daily for 1 week or until complete epithelial closure.
- **Dexamethasone eye drops 0.1 %:** 4 times daily, tapering the frequency every 2 months

- Keep once a day at least for 9-12 months.
- In steroid responder patients switch to **Flurometholone** with the same frequency.

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I. POSTOPERATIVE THERAPEUTIC REGIMEN

Low- Moderate risk (Grade 1):

- **4th generation Fluorquinolone eye drops :** 4 times daily for 1 week or until complete epithelial closure.

- Keep once a day at least for 9-12 months.
- After a year switch to FML

- **Dexamethasone eye drops 0.1 %:** 4 times daily, tapering the frequency every 2 months
- **Tacrolimus 0,03% (or Cyclosporine): At night, long term (not available in EGYPT)**

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I. POSTOPERATIVE THERAPEUTIC REGIMEN

Moderate risk (Grade 2):

- **ADD**

- **Oral Prednisolone (10mg):** OD for 1 month, then 5 mg OD for 2 months and stop.
- **Oral Tacrolimus :** 1 mg every 12 hours for 1 year and stop.
  - ADOPORT 0.5 mg
  - ADOPORT 1 mg

- **Omeprazol 20mg:** OD while using oral steroids.

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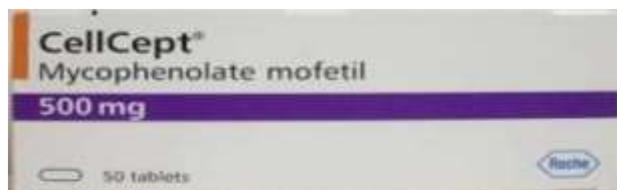
High risk (Grade 3):

- **ADD**

- Mycophenolate Mofetil (Cellcept): 250 mg every 12h for 1 year, then stop.



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I. POSTOPERATIVE THERAPEUTIC REGIMEN

Very high risk (Grade 4):

○ADD

- **Mycophenolate Mofetil (Cellcept):** 500 mg every 12h for 1 year, then reduce to 250 mg and assess long term treatment if necessary and good tolerance.

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I. POSTOPERATIVE THERAPEUTIC REGIMEN

Systemic immunosupression

- Be aware that these drugs have **potential severe side effects** and if you don`t have experience with them you should **work together with a general practitioner or rheumatologist** for a proper monitoring.
- Before starting these drugs the patient should have a complete general health assessment.
- **Every patient under oral immunosupression should have regular blood tests in order to discard complications**:
  - Generally BP, blood glucose, liver and renal function
  - Weekly for 1 month, every 2 weeks until the 3rd month, then every 2 months.

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I. POSTOPERATIVE THERAPEUTIC REGIMEN

Previous HSV keratitis

- Prophylactic ttt with **Acyclovir 400 mg BD** or **Valacyclovir 500 mg OD** starting 1 week before the transplant and **non stop while using topical/oral steroids** or other immunosupressive agent.

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I. POSTOPERATIVE THERAPEUTIC REGIMEN

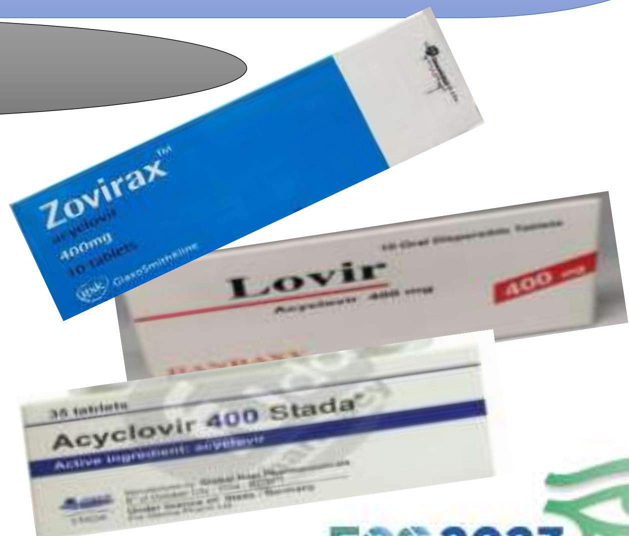
Previous HSV keratitis

<u>***ACYCLOVIR 400 mg**</u>

- ZOVIRAX 400 mg

- LOVIR 400 mg

- ACYCLOVIR 400 STADA



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I. POSTOPERATIVE THERAPEUTIC REGIMEN

Previous HSV keratitis

***VALACYCLOVIR 500 mg**

- VALTREX 500 mg

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I. POSTOPERATIVE THERAPEUTIC REGIMEN

Lamellar keratoplasty

- As risk of rejection is significantly lower (but not absent) post-operative **steroids can be tapered faster** and its discontinuation may be considered after the 6th post-op month.

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II. FOLLOW UP REGIMEN AND VISUAL REHABILITATION

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II. FOLLOW UP REGIMEN AND VISUAL REHABILITATION

Follow-up regimen:

- Day 1: Discard complications.
- Week 1: Check for epithelial closure.
- Week 6: First refraction. If necessary adjustment of continuous sutures.
- Month 3: Refraction .
- Month 5: Start selective suture removal (interrupted sutures).
- Month 7: Continue suture removal if necessary (complete in DALK).
- Year 1: Assess complete suture removal in PKP (annual visits thereafter).
- All sutures should be removed between 20 months and 3 years depending on steroid use and patients age.

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II. FOLLOW UP REGIMEN AND VISUAL REHABILITATION

- Suture adjustement and selective suture removal: Assisted by pentacam.
- **Any loose corneal suture must always be removed** (independent of the post-op timing) and topical antibiotics and steroids prescribed for two weeks after removal. If necessary, resuture.

- Patients who have had removal of all sutures should be seen 2-3 weeks later to ensure that the graft has not dehisced and for refraction.

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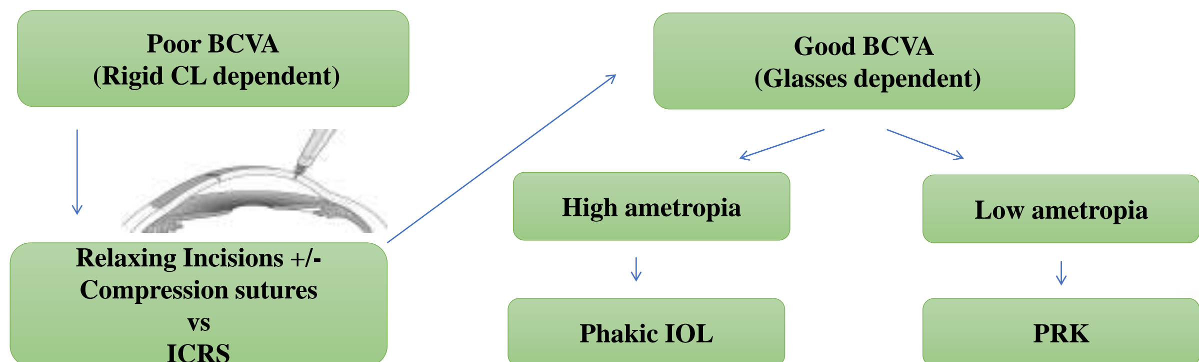
II. FOLLOW UP REGIMEN AND VISUAL REHABILITATION

Management of postkeratoplasty astigmatism (sutures off)



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TAKE A HOME MESSAGE

- **6/6 vision after a corneal transplant is not always possible to achieve** and many times further surgeries, spectacles or RGP wear are still required.
- **A corneal transplant is not refractive surgery.** It is a "visual rehabilitation" that takes at least 12-18 months to be completed.
- The risk of rejection or other complications never fully disappears.
- **Lamellar surgery, when indicated, should always be the first surgical option**. Despite their visual results compared with PKP are not better (or even slightly worse).

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THANK YOU

See you next year

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