

CLINICAL OUTCOMES OF
**TRANSEPITHELIAL
PHOTOREFRACTIVE KERATECTOMY
IN HYPEROPIA:**
FOLLOW - UP STUDY

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Conflict of interest

All authors have no

financial interests in the subject matter of this poster.

BACKGROUND

- TRANS-PRK
 - *An one-step combined ablative procedure in which laser is used to ablate both the epithelium as well as the underlying stroma with no lag of time; neither mechanical nor chemical insult applied. The risk of stromal dehydration is diminished.*
- Objectives of the study
 - *To assess the clinical outcomes of Trans-PRK in hyperopic eyes:*
 - Quantitative visual function
 - Visual quality
 - safety

METHODS & MATERIALS

- A follow up study with a mean follow up duration of 429 days
- 23 eyes (13 patients) with pure hyperopia or mixed hyperopic astigmatism; all undergone Trans-PRK by the same expert surgeon (S.A.M.)
- Surgical parameters
 - *Optical Zone: 6.7 – 7.3*
 - *Centration point for laser beam axis:*
 - eyes with pupillary offset distance < 0.35 = pupillary center
 - eyes with pupillary offset distance > 0.35 = corneal vertex
 - *MMC protocol: 0.02%, 5-30 seconds*

METHODS & MATERIALS

- SCHWIND AMARIS 500 excimer laser used in the procedures
- Preoperative and at least 12 months post-operative examination of the intended parameters are presented here:
 - *Visual acuity*
 - *refraction*
 - *Contrast sensitivity*
 - *Higher order aberrations*
 - *haze*
- Bina eye hospital, Tehran, Iran, July 2011 to September 2013

RESULTS

- **Demographic**

- *Age: 33.52 ± 10.7 years*
- *Gender: female (44%), male (56%)*

- **Refraction**

- *Preoperative SE of 1.37 ± 0.18 D improved to post-op value of 0 D ($p=0.04$)*
- *Preoperative hyperopia ranged from 1.15 to 4.25 D*
- *Preoperative astigmatism ranged from -0.25 to -4.75 D*

RESULTS

- **Visual acuity** (pre-op VS 12 months post-op)
 - *UDVA: Improved from 0.58 ± 0.09 to 1.21 ± 0.06 ($p < 0.001$)*
 - *Post-operative UDVA was significantly better than preoperative CDVA (1.21 ± 0.06 vs 1.01 ± 0.18 , $p = 0.04$)*
 - *89% of eyes reached UDVA of 20/20 or better.*
 - *CDVA : Preoperative value was comparable to post-op value (1.01 ± 0.18 vs 1.14 ± 0.03 , $p = 0.17$).*
 - *Just one eye lost two Snellen lines of preoperative BSCVA. The rest gained better results.*

RESULTS

- **Contrast sensitivity**

- *Both Photopic and Mesopic contrast sensitivities showed a trend of improvement.*
- *Note that in our contrast sensitivity scaling system, the smaller the value is, the better contrast sensitivity is interpreted.*

CS type	Preoperative	12months post-op	P.value
Photopic	1.54±0.42	0.8±0	0.06
Mesopic	1.44±0.37	0.85±0.03	0.08

RESULTS

- **Higher order aberrations**
 - *The changes observed were not statistically nor clinically significant.*

Type	preoperative	12 months post-op	P.value
Defocus	0.3±0.4	0.142±0.07	0.38
coma	0.23±0.01	0.131±0.13	0.24
trefoil	0.13±0.02	0.1±0.03	0.17
Spherical Aberration	0.18±0.03	0.09±0.02	0.07
tetrafoil	0.035±0.008	0.065±0.01	0.07

RESULTS

- **Post-operative Haze**

- *No record of haze was registered in any of the slit-lamp examinations made.*

- **Other complications**

- *No notable other complication was detected throughout the follow up period.*

CONCLUSION

- One-step combined trans-PRK by SCHWIND AMARIS 500 excimer laser in hyperopia \pm astigmatism:
 - A *safe* procedure
 - Resulted *efficiently* in significant improvements in quantitative visual parameters (visual acuity and refraction).
 - *Visual quality* in terms of contrast sensitivity showed a trend of improvement which might be established if power of the study is increased.
 - No *higher order aberration* was induced.

CONCLUSION

- To the best of our knowledge, it was the first report of its kind presented so far to demonstrate trans-PRK success in hyperopia.
- Upcoming studies with more cases assessed could yield more robust results.
- Stability of the achieved results and safety of the procedure remains to be definitely confirmed by longer follow-ups.