Ultrafast Excimer Laser for Transepithelial Customized PRK

G Alessio
Topography → Corneal Morphology
Pupillometer → Photopic and Scotopic pupillar dynamics
Surgeon → Determination of Refraction
Laser Refractometer → Objective Refraction
CIPTA Software → Plannig the ablation profile
Excimer Laser → Realization of the planned ablation profile
CUSTOMIZED ABLATION

- small spot

G Alessio, MD; F Boscia, MD; MG La Tegola, MD; C Sborgia, MD. Topography-driven Excimer Laser for the retreatment of decentralized myopic photorefractive keratectomy. Ophthalmology 2001; 108:1695-703.
G Alessio, MD; F Boscia, MD; MG La Tegola, MD; C Sborgia, MD. Corneal Interactive Programmed Topographic Ablation Customized Photorefractive Keratectomy for correction of post-keratoplasty astigmatism. *Ophthalmology* 2001; 108:2029-37.
A constant ablation rate on every corneal layer ensures the precision of the ablation.

The only way to obtain a constant ablation rate on every layer is to have a constant repetition rate on cornea.
Laserhead: 200Hz
Cornea: 1Hz /9mm
50HZ /1mm
Laserhead: 1000Hz
Cornea: 5Hz /9mm
5HZ /1mm
PATIENT DEMOGRAPHIC

- 110 eyes
- mean age: 33.6 years (range: 20-47; SD, 7.9)
- mean SE: -6.73D (range: -1.75 to -9; SD, 2.7)
- follow-up: 1-6 months
- 4 retreatments (irregular astigmatism post myopic PRK)

METHODS

- Customized topographic PRK (CIPTA)
- Transepithelial treatment
- Orbscan Topography
- Accuscan Excimer Laser (flying-spot 650μ; 1000Hz)
CHANGE IN SPHERICAL EQUIVALENT
CONTRAST SENSITIVITY (CSV 1000)

no glare

glare
CONCLUSIONS

• < time
• > patient compliance
• small spot
• autocalibration
• eye-tracker
• constant repetition rate on cornea
• > precision especially for customized ablation