

# Ultrafast transepithelial laser ablation for customized treatment with post op tomographic validation.

## Session Details

**Session Title:** Laser Refractive Surgery.

**Session Date :** 21 September 2011 | **Session Time:** 08:00 - 10:30

**Paper Time:** 08:36

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## Abstract Details:

### Purpose:

To verify the laser effective ablation point by point stromal tissue removal by using an objective topographic automated procedure which has the capability to control the effective ablation performed on the patient cornea compared with the theoretical ablation pattern. Integrated software will automatically calculate a new laser coefficient to compensate possible discrepancies.

### Setting:

Ospedale Santa Chiara Trento

### Methods:

Fifty virgin eyes of 30 patients (mean age  $26.1 \pm 7.3$  yrs; range 19 to 47) were underwent to custom refractive surgery. All patients were treated in transepithelial procedure with the IRES 1,000 Hz excimer laser (iVIS Technologies, Taranto, Italy). The ablation profile, calculated by CIPTA software (iVIS), was based upon Topography (Precisio, iVIS). The automatized topographic verification has been performed comparing the volume, shape and thickness of the ablation obtained by the difference between 60 (sixty) days postop and preop elevation topographic data with respect of the same parameters related to the designed theoretical ablation.

### Results:

No adverse events have been reported. Difference in volume was with mean value of  $0.22\text{mm}^3 \pm 0.07$ ; range 0 to 0.3, morphological ablation map analysis has been performed and it showed a topographical undercorrection which was not subjectively evaluable. A new laser coeff has been calculated by the close loop feedback software and further treated patients showed a coincidence of theoretical vs real ablation within a mean value of 2microns.

### Conclusions:

This new topographic automatized procedure to numerically compare the theoretical ablation with effective ablation is a powerful suite to control all procedure in custom ablations giving a powerful and objective effort in surgical followup to understand the weak point of surgical procedure where the refractive outcome was not what desired and can compensate for. FINANCIAL DISCLOSURE: None

