Purpose: To compare the effect of bimatoprost 0.03% and bimatoprost 0.015% (50% dilution) on central corneal thickness (CCT).

Design: Randomized controlled trial with crossover

Participants: 23 patients with primary open angle glaucoma or ocular hypertension

Methods: Patients were randomized to receive once daily bimatoprost 0.03% in one eye and bimatoprost 0.015% in the fellow eye. At week 4, the eye with diluted bimatoprost was switched to bimatoprost 0.03% for four more weeks. CCT was measured by ultrasound pachymetry (Compuscan P Ultrasonic Pachymeter UPC 1000) on baseline, week 4 and week 8 visits.

Main Outcome Measure: CCT

Results: Baseline mean CCT±SD was 0.546±0.039 mm in the bimatoprost 0.03% group and 0.542±0.042 mm in the bimatoprost 0.015% group (p=0.698,NS). Week 4: mean CCT±SD was 0.541±0.037 mm in bimatoprost 0.03% group and 0.541±0.039 mm in the diluted group (p=0.947,NS), without statistically significant differences between baseline and week 4 visits in both groups. Week 8: mean CCT±SD was 0.537±0.038 mm (bimatoprost 0.03%) and 0.535±0.037 mm (bimatoprost 0.015%) (p=0.849,NS) with statistically significant differences between baseline and week 8 for both groups (p=0.01 and p=0.008). For bimatoprost 0.03%, the comparison between week 4 and week 8 showed no statistically significant differences (p=0.09). However, the comparison between week 4 and week 8 in the bimatoprost 0.015% group showed a statistically significant difference (p=0.002).

Conclusions: In our study group, eight weeks were necessary to achieve a statistically significant corneal thickness reduction. These data also suggest that this effect occurs with a dose-response pattern.

Updated: March 11, 2008 12:55 PM AST