



### Topical carbonic anhydrase inhibitors can cause damage in corneas with severe endothelial dysfunction

#### ***The Science behind the Tip***

The enzyme carbonic anhydrase is present in the corneal endothelium where it is involved in fluid transport<sup>1</sup>. It thus determines corneal hydration. Studies have been done to verify whether inhibition of corneal carbonic anhydrase by dorzolamide<sup>1</sup> (Trusopt<sup>®</sup> and Cosopt<sup>®</sup>) might have any clinical impact.

It appears that the drug can safely be used in eyes with normal corneas, where it had no significant effects on either corneal thickness or endothelial cell count after 1 year of therapy<sup>2</sup>.

However, application of dorzolamide can increase corneal thickness in patients with cornea guttata<sup>3</sup>, where the functional reserve of the endothelium is lower. What's more, the drug can cause irreversible corneal decompensation in patients with severe endothelial compromise<sup>4</sup>.

Caution is thus required in patients with corneal endothelial dysfunction due to primary endothelial disease, intraocular inflammation, full thickness graft or any other cause. The same probably holds true for the other topical carbonic anhydrase inhibitor brinzolamide (Azopt<sup>®</sup> and Azarga<sup>®</sup>).

#### ***References***

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