

Heterogeneous Intraocular Pressure (IOP) Responses after Topical Administration of IOP Lowering Agents in Conscious Cynomolgus Monkeys

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PURPOSE: To evaluate if heterogeneous responses in IOP to Trusopt or N-6-Cyclohexyladenosine (CHA) exist in ocular normotensive conscious cynomolgus monkeys.

METHODS: Trusopt (2%), a carbonic anhydrase inhibitor (CAI), or CHA (2.5%), an adenosine A₁ agonist, was applied to the right eyes and the corresponding vehicles to the left eye of ocular normotensive, conscious cynomolgus monkeys. IOPs were measured with a pneumatonometer (Mentor Classic II) pre-dose and after treatment at 2, 4, 6 and 8 hours. Maximal percentage IOP changes were calculated from predose values and relative to the left/control eye of each animal.

RESULTS: With Trusopt, the mean maximal IOP change for the 10 animals was -9.9 ± 5.9 (SD) %. The percentages of animals showing greater than 8, 10, 12, or 15% IOP changes were 50, 40, 30, and 30, respectively, with corresponding mean changes of $-14.6 \pm 4.5\%$, $-15.9 \pm 4.0\%$, $-17.8 \pm 1.0\%$, and $-17.8 \pm 1.0\%$, respectively. With CHA, the mean maximal IOP change for the 20 animals was -12.6 ± 9.2 %. The percentages of animals showing greater than 10, 12, 15, and 20% IOP changes were 75, 60, 40, and 15, respectively, with corresponding mean changes of $-16.7 \pm 5.1\%$, $-18.3 \pm 4.4\%$, $-20.4 \pm 4.0\%$, and $-24.9 \pm 0.5\%$, respectively. The high responders under the two treatments were different.

CONCLUSION: There are heterogeneous responses to these two different IOP lowering agents in ocular normotensive monkeys. Response of a given animal to a given agent may also vary for agents with different modes of actions.