

Evaluation of oculohypotensive effect of enalaprilat in an Intraocular Pressure (IOP) recovery model in rabbits

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Introduction

Presence of angiotensin converting enzyme (ACE) in aqueous humor and other ocular tissues has been earlier demonstrated. ACE inhibitors used topically may lower the IOP by increasing the uveoscleral outflow and may also have a neuroprotective effect without the systemic side-effects. The present study evaluated the oculohypotensive effect of enalaprilat in comparison to timolol using an IOP recovery model.

Material and methods

The study was carried out in 18 adult albino rabbits of 2.5-3.0 kg which were divided into 3 groups. Group I received 50 μ l of normal saline in both eyes, group II received 50 μ l of enalaprilat (0.1%) in the right eye and 50 μ l of normal saline in left (control) eye and 50 μ l of timolol (0.5%) in right eye and 50 μ l of normal saline in left eye was administered in group III. The IOP was estimated using Schiötz tonometer. 10mL of sterile hypertonic (10% sodium chloride solution) was infused through the marginal ear vein at the rate of 1mL/min. The drugs were instilled in the test eye and the vehicle in the control eye immediately after infusion of

hypertonic saline. IOP was measured at 40 and 20 min prior to instilling the eye drops as baseline and then at 0, 20, 40, 60, 80 min and at every 20 minute interval thereafter till baseline values were obtained. The relative percent of IOP (IOPt%) at various time intervals in both control and test eyes was calculated by the equation, $IOPt\% = (IOP_t / IOP_{-40}) \times 100\%$.

Results

Time taken for recovery of IOP in the control group was 110 ± 6.83 , 150 ± 8.56 with timolol ($P < 0.01$) and 130 ± 6.83 with enalaprilat ($P = 0.065$). The relative percent of IOP was significantly low at 80, 100 and 120 minute intervals with both timolol and enalaprilat when compared to controls.

Conclusion

Results of the study show an oculohypotensive action of enalaprilat which is less than timolol. Further studies with a higher dose of enalaprilat may be more conclusive in this regard.