

Comparison of the Rebound Tonometer (TonoVet®) with the Applanation Tonometer (Tonopen XL®) in Normal Eurasian Eagle Owl (*Bubo bubo*)

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Introduction: To examine the feasibility and accuracy of handheld rebound tonometer, TonoVet® and to compare the intraocular pressure (IOP) readings of the TonoVet® with that of applanation tonometer, Tonopen XL® in normal Eurasian Eagle Owls.

Materials and methods: Twenty eyes of 10 clinically normal Eurasian Eagle Owls were used for this study. Complete ocular examinations, using slit-lamp biomicroscopy and indirect ophthalmoscopy, were conducted on each raptor. The IOP was measured bilaterally using rebound tonometer, and then a topical anesthetic agent was used after one minute. Tonopen XL® tonometer was applied in both eyes in 30 seconds later.

Results: The mean±SD IOPs obtained by means of rebound tonometer were 10.4±1.6 mmHg (range, 7 to 14 mmHg) and 9.3±1.8 mmHg (range, 6 to 12 mmHg) for applanation tonometer. There was a significant difference (P=0.001) in the IOPs obtained from both tonometers. The linear regression equation describing the relationship between both devices was $y=0.669x + 4.194$ (x =TonopenXL® and y =TonoVet®). The determination coefficient (r^2) was $r^2=0.550$.

Clinical relevance: The results suggest that the rebound tonometer significantly overestimated the applanation tonometer and was tolerated well because of the rapid and minimal stress-inducing method of tonometry in the Eurasian Eagle Owls, even without topical anaesthesia. However, further studies comparing TonoVet® with manometer may be necessary to employ rebound tonometer for routine clinical use in Eurasian Eagle Owls.

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