

NONINVASIVE MEASUREMENT OF INTRAOCULAR PRESSURE IN RATS WITH THE ICARE TONOVET REBOUND TONOMETER

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Abstract

Rebound tonometry is an accurate method of measuring intraocular pressure (IOP) that is easy to perform and does not involve the use of anesthesia. This, together with biological and genetic advances contributes to the use of ocular etiopathogenetic data of rats. The aim of the study was to evaluate the applicability, reproducibility and accuracy of a rebound tonometer in measuring IOP in rats. IOP was measured three times, at different time intervals, in 40 male and female Sprague Dawley rats, 10 weeks old. The animals studied were kept in normal living conditions, not subject to external stress. The mean IOP expressed consecutively of six successive measurements for each eye was determined with the iCare TonoVet rebound tonometer. The readings generated gave IOP values between 13.3 - 14.5 mmHg in males and 12.6-16.1 mmHg in females. There were no significant differences between the eyes in terms of the values obtained in a measurement so the variability was 0.02 mmHg. Rebound tonometry is convenient, can be used without topical anesthesia and provides fast and accurate results. These can be useful to the clinician, when we talk about the rat as a pet or to scientists, when the rat is chosen as an animal model for various biomedical research.

Key words: rat, iCare tonovet, rebound tonometry
