The aim of this study was to determine the effects of factors such as sex, eye-side and diurnal variation on intraocular pressure (IOP) values measured by Tono-Pen Vet® in healthy calves. Twenty four (12 males, 12 females) calves were used in this study. IOP measurements were performed in the morning (6:00 a.m.) and at night (8:00 p.m). Average IOP values in all calves were measured as 17.67±2.64 mmHg in the morning and 15.52±2.05 at night and the difference between these two time points was found to be statistically significant (p<0.0001). Average IOP values were measured as 16.04±2.82 mmHg in males and 17.15±2.23 mmHg in females with a statistically significant (p<0.05=0.023) difference between them. Average IOP values were 16.81±2.85 mmHg in right eyes and 16.37±2.23 mmHg in left eyes and the difference between these values were statistically insignificant (p>0.05). At the end of study, overall average IOP in all calves was measured as 16.59±2.59 mmHg. The present data showed a significant difference in terms of sex and diurnal variations and a non-significant difference in eye-side. In addition, this study is the first research article in which the intraocular pressure in calves was measured by Tono-Pen Vet®.

Key words: calves, intraocular pressure, Tono-Pen Vet®, sex, eye-side, diurnal variation

Abstract

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Introduction

Intraocular pressure (IOP), one of various routine systemic eye examination parameters (Giannetto et al. 2009, Park et al. 2011, Pereira et al. 2011), is an important criterion for diagnosing eye diseases such as uveitis and glaucoma that can result in blindness when left untreated (Jeong et al. 2007, Kato 2014). IOP measurement is performed using manometric (direct) and tonometric (indirect) techniques (Andrade et al. 2012). Although manometry, which works on the principle of cannulation/paracentesis of the camera is accepted as the gold standard in IOP measurement, because of its invasiveness it has found just the way in the field of experimental IOP studies rather than in clinical practice (Park et al. 2011, Andrade et al. 2012, Doering et al. 2017). Due to this limitation, for clinical IOP measurement in humans and animals alternative tonometry techniques (indentation, applanation, rebound) have been developed (Spiessen et al. 2015, Doering et al. 2017).