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Regional evaluation of the testicular artery by Doppler ultrasonography in healthy adult cats
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Studies of blood perfusion of testicular artery in its three regions has already been described in dogs, and differences among the regions were observed\textsuperscript{1,2}. In tomcats, only one study describes blood flow evaluation in three regions of the testicular artery\textsuperscript{3}. In order to verify possible differences between regions of blood perfusion in tomcats, this study aimed to evaluate the Doppler parameters of the feline testicular artery in three different regions. Fourteen healthy adult male cats were used. Ultrasound examinations were performed on both testes of each cat using a SonoAce Pico machine (Medison Co., Ltd., Daechi-Dong, Kangnam-ku, Seoul, Korea) with a linear array transducer with 5 to 9 MHz capability. Each cat was submitted to a single ultrasound evaluation performed by one observer. For the measurement of testicular artery flow, color Doppler ultrasound was used with the transducer initially placed at the neck of the scrotum. The tortuous distal region of the supratesticular artery was identified, immediately cranial to the cranial pole of the testis. Then identification of the marginal region in the longitudinal section was made. Next, the relatively straight intratesticular arteries within the testicular parenchyma were identified. Pulse-wave Doppler assessment was performed. The three best waves were used to measure the following Doppler velocimetric parameters: peak systolic velocity (PSV), end diastolic velocity (EDV), resistance index (RI) and pulsatility index (PI). Data were submitted to the Shapiro-Wilk test for normality and then arcsine transformation was used when necessary. An ANOVA followed by Student’s t test was used to compare different regions of the artery (P < 0.05) The results were expressed as the mean ± SD. The measurements of the testicular artery did not differ between the right and left testes. PSV values for the supratesticular, marginal and intratesticular regions were, respectively, 6.40 ± 1.88 cm/s, 5.30 ± 1.16 cm/s and 5.39 ± 1.80 cm/s. PSV values for the supratesticular region were higher than in the marginal region (P < 0.05), although no differences were observed in the marginal region, compared to the other regions. EDV values of the supratesticular, marginal and intratesticular regions were, respectively, 3.70 ± 1.03 cm/s, 3.49 ± 1.07 cm/s and 3.38 ± 1.51 cm/s. RI and PI values for the three regions were, respectively: supratesticular (0.41 ± 0.10 and 0.55 ± 0.17), marginal (0.35 ± 0.16 and 0.44 ± 0.24) and intratesticular (0.40 ± 0.19 and 0.54 ± 0.31). EDV, RI and PI showed no differences between the regions of the artery. Doppler velocimetric measurements of the testicular artery on the supratesticular region should be performed in the same place each time because the proximity of the artery to its origin may lead to differences in the waveform pattern and possibly in the Doppler parameters, as described previously in dogs\textsuperscript{2}. The values of PSV, EDV and RI of the supratesticular region were similar to the values previously observed in cats\textsuperscript{3}; however, they did not report the PI. Therefore it was concluded that there are differences among regions of the testicular artery. Furthermore, intratesticular region of the testicular artery presented a lower PSV when compared with the supratesticular region. Thus, it is important to make sure to use criteria for Doppler evaluation of testicular artery choosing the same region of the testicular artery.