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GnRH stimulation increases testicular blood flow in dogs
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Gonadotrophin releasing hormone (GnRH) is known to affect the release of testosterone, and thus to indirectly influence testicular activity. In addition, vascular ultrasonography has been used to describe findings on canine testis [1,2]. The aim of this study was to determine the influence of GnRH administration on testicular blood flow of the epididymis in adult dogs using ultrasonography. Four healthy male dogs of various breeds were used for this study. A complete clinical evaluation, including testicular palpation, was performed prior to study onset. Blood samples were taken to measure serum testosterone levels (T). Testicular Doppler ultrasonography was performed using a 4-8.5 linear probe connected to a commercial ultrasound unit (Zonare, Zonare Medical Systems Inc, Mountain View, California, USA). Testicular dimensions were measured with a sliding caliper and volume was estimated using the following formula: Volume = Width^2 x height x 0.492. Following testicular evaluation, each dog was given a SC injection of 50 mcg gonadorelin (Fertagyl, MSD). Blood sampling and testicular measurements were repeated one hour after GnRH administration while testicular Doppler ultrasonography was performed before and 1, 3 and 5 hours after GnRH administration. Statistical analysis was done using a paired samples t-test. Prior to GnRH administration testicular blood flow was barely visible on Doppler ultrasonography. Following GnRH administration and for the next 3-5 hours a definite increase in testicular blood flow was evident. In normal conditions only a limited amount of testicular blood flow is visible by means of Doppler ultrasonography. However, GnRH administration enabled to easily observe testicular blood flow retrieving a stronger Doppler signal. Moreover, blood flow remained visible during the following 3-5 hours post GnRH administration. This may be due to the effect of GnRH on testosterone secretion and the potential increase of testicular activity. This is the first report on an increase in blood flow in dogs treated with a short-acting formulation of GnRH.