



A160 Physiology of Reproduction in Male and Semen Technology

Effect of GnRH on scrotal surface temperature, testicular volume and sperm parameters of bulls with poor semen quality

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Spermatogenesis is coordinated by the hypothalamic-pituitary-gonadal axis, mainly by GnRH secretion. The testis response occurs locally but testicular dysfunctions can be caused by inefficient central stimulus which would justify the use of GnRH to increase male reproductive parameters (CONTRI et al., Vet Quart, 32:5154, 2012). Therefore, the aim of the study was to evaluate the systemic treatment with GnRH on the temperature of the scrotal surface, testicular volume and seminal parameters of bulls with poor semen quality. The experiment was conducted at Embrapa, São Carlos-SP. Five Canchim bulls (37.6±6.4 months; 667.4±22.9 kg, 6.3±0.1 BCS), kept on pasture, were used. The animals underwent andrological evaluation and were characterized as low semen quality bulls, according to recommended standards (CBRA, 2013). Treatment consisted of i.v. administration of GnRH analog (gonadorelin 100µg/48 hours) for a total of 3 times. Scrotal thermograms were recorded (T300 FLIR Systems®) under controlled environmental condition during the morning in order to evaluate the mean of the scrotal surface temperature (SST, °C) after 0 (T0), 120 (T120) and 180 (T180) minutes of hormonal administration. Testicular volume (V, cm³) was calculated after measurement of testicular length and width (Bailey et al., Theriogenology, 49:581-94, 1998) and subsequently the semen was collected by electroejaculation. Biometry and seminal quality analyzes were performed two times before hormonal treatment and six times after, every two weeks. Sperm variables evaluated were: sperm plasma membrane integrity (SPMI, %) and total morphological defects (DEF, %). The data from a completely randomized design were submitted to analysis of variance using SAS MIXED and the means were compared by Tukey test (P < 0.05). SST did not differ between times (T0: 34.1±0.17, T120: 34.2±0.11 and T180: 34.6±0.14°C, P > 0.05). There was no influence of treatment on the testicular volume (V=273.4±20.64 vs 321.3±37.34 cm³, P > 0.05) and on seminal quality parameters (SPMI=54.9±7.2 vs 44.1±8.1%; DEF=18.0±4.4 vs. 17.7±4.7%, P > 0.05) contemplating means before and after treatment, respectively. Abnormal testicular thermoregulation is one of the most important issues in the fertility of bulls, and it was not altered by hormonal administration, since the scrotal temperature remained within the range considered suitable for normal spermatogenesis in cattle (2 to 6°C below body temperature). The increase in scrotal temperature can cause testicular degeneration, decreasing the space occupied by tubular epithelium and a reducing testicular volume. An increase in abnormal sperm cells, with damaged plasma membrane and morphological defects, is also observed. In conclusion, the administration of GnRH analog maintained the functional scrotal thermoregulation system, but did not alter the testicular and sperm parameters of bulls with low semen quality.

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