

Effect of vaccination against GnRH (Bopriva®) in the male pubertal calf

Grégoire Theubet¹, Rico Thun¹, Monica Hilbe², Fredi Janett¹

¹Clinic of Reproductive Medicine, ²Institute of Veterinary Pathology, University of Zurich, CH-8057 Zurich

Schlüsselwörter

Calf, Castration, GnRH-vaccine, Testosterone, Puberty

Problemstellung und Zielsetzung

The objective of this experiment was to investigate the effectiveness of a newly developed bovine anti-GnRH vaccine (Bopriva®, Pfizer Animal Health, Australia) in peripubertal bull calves.

Material und Methoden

A total of 12 peripubertal bull calves aged between 6 and 8 months were used, 2 randomly selected animals served as controls. Animals were vaccinated twice at an interval of 4 weeks with 1 ml of Bopriva® (400 mg GnRH-protein-conjugate) subcutaneously in the neck and observed for a total of 36 weeks. Scrotal circumference was measured every week and blood samples were also taken weekly for the determination of testosterone and GnRH antibodies. Three months after the second injection (booster), 5 animals were slaughtered and their testes histologically examined.

Ergebnisse und Bedeutung

GnRH antibody titers rapidly began to rise after the second vaccination and reached peak values 3 weeks later. Testosterone concentrations decreased to values below 0.5 ng/ml serum 1 week after the booster and remained at this low level for at least 10 weeks. The following increase of testosterone occurred individually within 11 and 23 weeks after the booster injection. Histological examination of testes in vaccinated animals showed an incomplete spermatogenesis with impaired or no production of spermatids and a reduced diameter of seminiferous tubules. From our results we conclude that in the peripubertal bull two injections with the new bovine anti-GnRH vaccine 4 weeks apart is effective in suppressing testicular growth and testosterone secretion during at least 10 weeks after the booster injection.

Publikationen, Poster und Präsentationen

Theubet, G.; Thun, R.; Hilbe, M.; Janett, F. (2010) Wirkung einer Impfung gegen GnRH (Bopriva®) beim männlichen pubertären Kalb. Schweiz. Arch. Tierheilk. in press.

Theubet, G. (2010) Kastration männlicher pubertärer Kälber mittels Immunisierung gegen GnRH. Dissertation Universität Zürich.

Janett, F.; Theubet, G.; Hilbe, M.; Thun, R. (2008) Castration of bull calves by immunization against GnRH. Reprod. Dom. Anim. 43 Suppl. 5: 67 (abstract).

Janett, F.; Theubet, G.; Hilbe, M.; Thun, R. (2008) Kastration männlicher Kälber mittels Immunisierung gegen GnRH. Proc. Vets 2008.

Projekt 2.07.08

Projektdauer November 2007 – April 2010