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Comparison Between Plasma Substance P and Cortisol Concentrations Following Castration in Beef Calves

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Objective—To evaluate plasma concentrations of substance P (SP) and cortisol in calves after castration or simulated castration.

Animals—10 Angus-crossbred calves.

Procedures—Calves were acclimated for 5 days, assigned to a block on the basis of scrotal circumference, and randomly assigned to a castrated or simulated-castrated (control) group. Blood samples were collected twice before, at the time of (0 hours), and at several times points after castration or simulated castration. Vocalization and attitude scores were determined at time of castration or simulated castration. Plasma concentrations of SP and cortisol were determined by use of competitive and chemiluminescent enzyme immunoassays, respectively. Data were analyzed by use of repeated-measures analysis with a mixed model.

Results—Mean ± SEM cortisol concentration in castrated calves (78.88 ± 10.07 nmol/L) was similar to that in uncastrated control calves (73.01 ± 10.07 nmol/L). However, mean SP concentration in castrated calves (506.43 ± 38.11 pg/mL) was significantly higher than the concentration in control calves (386.42 ± 40.09 pg/mL). Mean cortisol concentration in calves with vocalization scores of 0 was not significantly different from the concentration in calves with vocalization scores of 3. However, calves with vocalization scores of 3 had significantly higher SP concentrations, compared with SP concentrations for calves with vocalization scores of 0.

Conclusions and Clinical Relevance—Similar cortisol concentrations were measured in castrated and control calves. A significant increase in plasma con-
Centrations of SP after castration suggested a likely association with nociception. These results may affect assessment of animal well-being in livestock production systems.

Risk Factors for Cow Mortality in New Norwegian Dairy Cattle Free Stalls

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Mortality in dairy cattle is of major concern and indicates a serious welfare problem. The overall goal was to investigate the risk of mortality associated with the building period and the first years after a construction of a new free-stall barn and to see if mortality in dairy cows relates to other health measures.

A database including 232 free-stall barns built from 1996 to 2005 was used. All lactations starting with a calving two years before the construction year until 2008 were included in the study.

The parity number; breed; calving difficulties; the next calving date or removing date from the herd, as well as reasons for removing; together with herd size; bulk-milk somatic cell count (BMSCC); incidence of clinical mastitis (CM); and milk yield per cow-year were extracted from the database in the Norwegian Dairy Recording System. The reasons for removal (culling) were grouped into death or not. These data were used in survival analyses with dependent variable being the time from calving until death or censoring. The data were censored at 15 days before next calving or at removal from the herd for reasons other than death. Observation period was set to be maximum 305 days. Cows who lived at January 1, 2008, were censored at that day. If the cow died later than these 305 days, she was classified as “not died.”

All together, 68,458 lactations were included. Of these lactations 707 (1.03%) ended in death. Parity, calving difficulties, breed, calving year, BMSCC, and CM were identified as risk factors associated with death. The calving date in relation to construction year was not a risk factor per se; however, when analyzing only culled cows the proportional rate of death was significantly reduced from 2 years after construction year.

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