

Alternatives to castration and their long-term effects on salivary cortisol concentrations in piglet

*Jinhyeon Yun, Anna Ollila, Claudio Oliviero, Mari Heinonen, Anna Valros and Olli Peltoniemi
University of Helsinki, Production Animal Medicine, Finland; jinhyeon.yun@helsinki.fi*

Piglet castration is a major animal welfare problem while the procedure is usually done without anaesthesia or analgesia. However, administration of pain medication or anaesthesia for young piglets should be considered carefully. We investigated the long-term effect of five different castration protocols on salivary cortisol concentrations of piglets when they were exposed to noise or housed with new mates. Five days old crossbred (Y × L) piglets (total n=181, from 29 litters) were allocated to five separate castration protocols: (1) TC: traditional castration without medication; (2) PK: meloxicam injection 0.4 mg/kg i.m.; (3) LA: local anaesthesia with lidocaine (2%); (4) GA: general inhalation anaesthesia with isoflurane (1.5%) and meloxicam injection 0.4 mg/kg i.m.; and (5) NC: no castration. Piglets were weaned at 36 days of average age (hereafter D36). The weaner piglets subjected to the novel stressor, i.e. thunderstorm sound at 07:40 on D84, and they were moved to the fattening unit with new pen mates at 20:20 on D85. Four salivary cortisol samples were collected on synthetic swabs at the same time each day, i.e. approximately 08:00, 12:00, 16:00 and 20:00 on D83, D84, D85 and D86, respectively. The data were analysed using repeated measures with a nested design. Irrespective of the treatments, the cortisol concentrations of the piglets did not respond to the thunderstorm sound, but increased after grouping with new mates in fattening units ($P < 0.01$). After grouping, the cortisol levels of the piglets in PK group were higher than in NC and TC ($P < 0.05$, for both), and tended to be higher than in GA group ($P = 0.07$). In conclusion, moving weaner pigs to new environments and grouping them with new mates seems more stressful probably due to fighting than exposing them to thunderstorm noise in terms of cortisol status. The higher cortisol levels seen in castrated pigs with pain medication can be speculated to be due to increased sensitivity to the pain caused by the wound after fighting.