

Evaluation of a behavioural method for assessing pain following castration in piglets

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Assessing pain in piglets following castration has proven difficult. Past studies have shown that castrated piglets are more inactive and may suckle less. However, looking for changes in the behavioural activity requires hours of data collection and has resulted in inconsistencies between studies (McGlone et al., 1993; Taylor et al., 2001). Better methods are required to assess pain in piglets, if we are to determine the efficacy of pain medication. The purpose of this study was to develop a behaviour test in which a piglet's performance post-castration would be reflective of pain and its response could be accurately and consistently quantified. Piglets were tested individually in a box (2 x 0.5 m) fitted with two "hurdles" (10 cm high). We hypothesized that piglets in pain would be less willing to move and therefore would negotiate fewer hurdles. Preliminary studies showed that a 5-min test was sufficient to find differences between control and castrated piglets, but only when tested at 10 min following castration ($P < 0.05$; tested at -10, 10, 60 and 120 min relative to castration). Two additional experiments (2x2 factorial) were conducted to validate the hurdle test ($n=80$ piglets per experiment). Male piglets were assigned to sham-castration (control) or castration with and without the use of lidocaine. Lidocaine was administered into the testis 10 min prior to castration. In Experiment 1, a 2% lidocaine solution (with epinephrine; 4 mg/kg) was used and in Experiment 2 piglets were given a 1% lidocaine solution (without epinephrine; 6 mg/kg). In both experiments, castrated piglets negotiated fewer hurdles ($P < 0.05$); however, administering lidocaine did not improve the outcome. These results suggest that: (1) lidocaine may not have completely blocked all pain (i.e., tearing of the cremaster muscle also occurs) or (2) the design of behavioural test was not appropriate for measuring pain. Further research is needed in order to develop and validate a behavioural test that will determine the effectiveness of a drug regimen at reducing piglet pain.

Implications: The development of a simple behavioural test would enable researchers to determine the efficacy of different analgesic regimens. Producers need to be aware of the efforts being made to assess and alleviate pain, which is an important animal welfare issue within our livestock systems.