Development of a social motivation test to assess piglets’ affective state following on-farm surgical castration

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Introduction

In castration studies, indirect indicators must be interpreted to assess piglets’ pain response. These indicators, commonly used to assess the impact of castration and the efficacy of pain mitigating procedures, include (neuro)physiological, autonomic, behavioural, and immunological recordings.

While most of these indicators are capable of grasping the nociceptive response of piglets, they often fail to encompass the emotional, affective aspect of pain.

Behavioural tests intending to record the affective aspect of piglet pain after castration have recently been designed, but no standard, practical, test have been developed.

Aim

→ The present study intends to develop a behavioural test enabling the recording of piglets’ affective state following on-farm surgical castration.

→ The test focuses on piglets’ social motivation immediately after castration.

Methods

The motivation test consists in an arena (2.4 x 0.8m), at one end of which the tested piglet is introduced. The piglet can walk to the other end of the arena, across 3 obstacles, to get in contact with a grid separating him from 3 of his littermates placed in a heated area. The test is over when the piglet reaches the grid, or after 3 minutes.

Recordings of piglets’ social motivation include latency to start moving, latency to reach the grid, and speed. Distance walked was also recorded as a proxy of potential walking impairments resulting from the castration procedure.

A total of 149 piglets between 3 and 4 days old were tested in a commercial Danish farm, after being subjected to one of three treatments:

• Sham handling, CS (n=50)
• Castration without anesthesia, CC (n=50)
• Castration with previous injection of local anesthesia (Procamidor®Vet, 2x0.5mL, as commonly performed by Danish farmers), AA (n=49)

Preliminary results

Censoring level (grid not reached within 3 minutes): AA=41%, CC=10%, CS=6%

Discussion

There was no significant difference in the performance of CC and piglets, despite assumed differences in pain level after castration. The motivation test is therefore probably not recording pain in itself. AA piglets performed significantly differently than the other piglets. They however did not walk less during the test, which indicates that their apparent reduced motivation was likely not due to walking impairments. It is hypothesized that piglets’ reduced social motivation may be due to a systemic effect of the local anesthetic. Yet, further analysis are needed to confirm this hypothesis.

• The motivation test does not seem to record pain.
• The test may instead record cognitive impairments coming from a potential systemic effect of the local anesthetic.
• A follow-up study is currently being carried out, investigating piglets’ performance when anesthetized with different volumes of anesthetic (0.5 vs. 0.3 mL).

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