

Farmers' administration of local anesthetics prior to piglet castration: a practical gap of knowledge?

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Introduction

Surgical castration is a routine practice performed to prevent the development of boar taint. The procedure has shown to be painful, resulting in the use of local anesthesia in various countries, including Denmark.

Local anesthesia mandatory since **2018** in DK



Unlike other mutilating practices, injection of local anesthetics prior to castration can be performed by Danish farmers themselves, after a brief training. Yet, a vast majority of studies of the efficacy of local anesthesia have been performed by veterinarians in experiment-like conditions.

While the ability for anesthetics to relieve piglet pain has been questioned, notably because the injection seems painful in itself, a potential gap of knowledge therefore might exist between the efficacy of anesthetics reported in the literature, and the ability of anesthesia to relieve castration pain in practice.

320 000
male piglets
slaughtered
each day in DK

Aim

- The present study investigates the efficacy of various local anesthesia procedures to relieve piglet pain during castration, when administered in an on-farm setting.
- The study aims to define an optimal local anesthesia procedure for piglet welfare, while providing further insights into the methodology of pain recording.

Methods

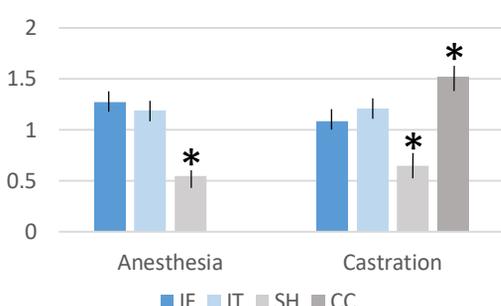
The first study investigated the effect of the **injection method** (intra-funicular injection (in the spermatic cord through the testis), IF, vs. intra-testicular injection, IT) and of the **time interval** between anesthetics injection and castration (2.5, 5, 10 and 30 min). Control groups were either sham handled, SH, or castrated without anesthesia, CC. A total of **597 animals between 3 and 4 days old** were included. Anesthesia was performed with Procamidor®Vet, 0,5 mL per testis, as commonly performed in Denmark.

Piglets' response to castration was assessed using a combination of indicators:

- **Saliva cortisol concentration** 20 min and 5h after castration
- Call rate and call duration during anesthesia and castration
- Frequency of **resistance movements** during anesthesia and castration
- Social motivation immediately after castration
- In-pen behaviours up to 5h after castration
- Performance in a human-animal relationship test 5h after castration

Preliminary results – study 1

Freq. resistance movement per second of procedure



Preliminary conclusions – study 1

- **No significant difference was found between the two methods of anesthetic injection.**
- **Time interval with castration significantly affected saliva cortisol levels, with the lowest concentration found with the 5 minutes interval.**
- **Resistance movements analysis suggested that anesthesia, with either method, relieved piglet pain during castration, but to a certain extend only.**
- **In addition, both types of anesthetic injections seemed painful in themselves.**
- **Further data analysis are to be performed.**

Into study 2

The second study is currently being carried out, and focuses on the **volume of anesthetic** given. Piglets are anesthetized with the intra-testicular method, using either 0,5 mL or 0,3 mL of Procamidor®Vet per testis, and are castrated after 5 minutes. Sham handled and non-anesthetized castrated controls are also included, for a total of 250 piglets to be tested.

Similar types of indicators will be used to assess piglets' response.

Results will be handed to the Danish Veterinary and Food Administration, commissioner of the project, in early 2022.

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