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Piglets exhibit no overt behavioural indicators of pain in the short or long term following tooth resection

Abstract

To minimise damage inflicted on littermates and the sow’s udder, the needle teeth of commercial piglets are often clipped soon after birth. However, benefits of this practice are controversial, and the potential to cause dental pulp exposure, gingivitis, and pulpitis make this procedure likely to induce both short and long term pain. The current ongoing study aims to utilise multiple behavioural and physiological indicators to evaluate the presence, duration and severity of pain resulting from tooth resection, and to assess whether tooth grinding or clipping is more appropriate in terms of piglet welfare. Results presented are preliminary findings based on piglets from 8 behavioural (B) litters in the home pen and 12 B and 5 physiology (P) litters around the time of treatment. In each litter, either 1 male and 1 female (B litters) or 2 females (P litters) received one of three treatments: 1) tooth clipping with sterilised pliers (Clip), 2) tooth grinding with a hand held rotating grindstone (Grind), 3) sham handling - based on grinding treatment (Sham). Behaviour of each piglet (isolated) was recorded for 1 minute before and after the procedure (n= 36 males and 66 females). In B litters, behaviour was also filmed remotely in the farrowing pen for 2 hours on d1 (day of treatment), d5, d12, d19, d26 and in the post-weaning pen on d33 and d40 (n=23 males and 23 females; data from d1, d5, d12 and d26 presented). Recordings were analysed using the Noldus Observer® software. In the 1 minute pre-/post-treatment data, a Treatment*Time effect was present for standing duration (F=20.5, p<0.0001) and duration of investigating wood shavings (F=4.37, p=0.0152). However, post hoc analysis revealed these differences were due to lower activity levels in clip piglets before treatment rather than a true treatment effect. No Treatment*Time effect was present for any other behavioural parameter. In the home pen on d1, a treatment effect on standing duration was observed (Chi²=11.03, p=0.004). This was due to a significantly lower standing duration in grind vs. clip piglets, with sham piglets being intermediate (9.62% vs. 13.43% vs. 12.9% respectively). A complimentary treatment effect was found on d1 for inactivity (sitting and lying combined; Chi²=11.812, p=0.003) with inactivity being significantly higher in grind vs. both clip and sham piglets (88.23% vs 83.90% vs 84.72% respectively). No treatment effect was observed for duration of walking or oral behaviours, or for number of agonistic behaviours. No treatment effects were present on d5, d12 or d26. To conclude, no consistent behavioural differences were observed between treatment groups in the immediate, short or long term periods following treatment in this preliminary analysis. However a treatment effect may become apparent with the addition of data from the remaining litters (18 piglets from 3 P litters for pre-post-treatment observations and 24 piglets from 4 B litters for home pen observations).

Keywords: Piglet; Dental; Pain; Behaviour; Welfare

