

Drenching low birth weight piglets: friend or foe?

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Introduction

Farmers face difficulties in redeeming their investment in larger litters since this comes with a higher litter heterogeneity and mortality due to the **higher prevalence of pigs with a low birth weight (BW) (Fig. 1)**. The major problem these small pigs face is ingesting adequate amounts of colostrum and milk. One of the strategies farmers practice, is **drenching** with an enriched formulated milk replacer (**Fig. 2**). However, this implies chasing, picking up, fixating and drenching the animals while they are often agitated or scared.



Fig. 1. Heterogeneity in BW: piglet with a normal BW (back) and piglet with a low BW (front).



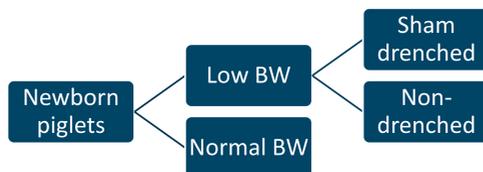
Fig. 2. Drenching a low birth weight piglet.

Objectives

If drenching low birth weight (LBW) piglets provokes **additional stress**, it might counteract any potentially positive effect of the supplemented substance and be **detrimental for the piglets' survival** in general. In this study the **effect of drenching (sham)** for 7 days after birth vs. non-drenching on **body weight, skin lesion (SL) score** and **survival** of LBW piglets was examined on days 1 (birth), 3, 9, 24 (weaning) and 38 (post-weaning).

Methods

1. Classification & Allocation



- Piglets from Topigs20 (n = 58) or Norwegian landrace (n = 9) sows were weighed immediately after birth and classified as LBW = $\text{mean BW}_{\text{litter}} - 2.5 \cdot \text{SD} < \text{BW} < \text{mean BW}_{\text{litter}} - 1 \cdot \text{SD}$
- LBW piglets were randomly allocated to 2 treatment groups: sham drenched (n = 37) or non-drenched (n = 39)

2. Treatment

- Piglets were sham drenched during first 7 days (20 sec with an empty 2.5 mL syringe)
- Non-drenched piglets were not handled

3. Parameters

- BW
- SL score (0-3)
 - 0: no lesions
 - 1: <5 superficial lesions
 - 2: 5-10 superficial lesions or <5 deep lesions
 - 3: >10 superficial lesions or >5 deep lesions
- Mortality

Day 1 → Day 3 → Day 9 → Day 24 → Day 38

Results

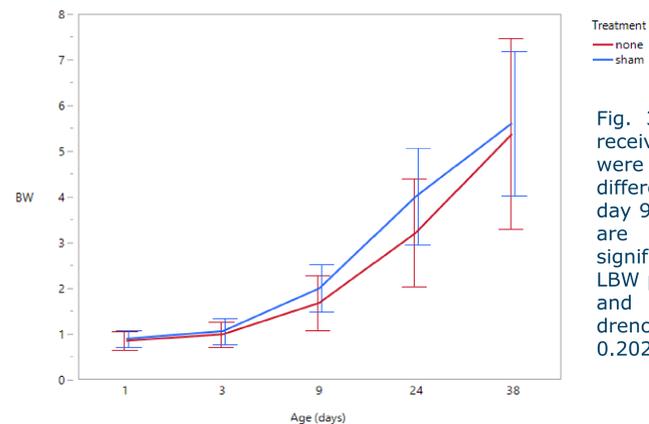


Fig. 3. Body weight of piglets that received no treatment (n = 39) or were sham drenched (n = 37) at different time points (day 1, day 3, day 9, day 24 and day 38). All values are mean ± SD. There was no significant difference in BW between LBW piglets that were sham drenched and LBW piglets that were not drenched (linear mixed models, p = 0.2028).

Age (days)	Estimate			Ranking of highest SL score		
	Not drenched	Sham drenched	All	Not Drenched	Sham drenched	All
1	0.110	-0.125	0.011	4	3	4
3	0.627	1.543	1.070	5	5	5
9	-0.255	0.231	-0.053	1	4	3
24	-0.255	-0.781	-0.495	2	2	2
38	-0.227	-0.868	-0.533	3	1	1

Table 1. Probability estimates of SL being more severe at different time points: day 1 (n = 76), day 3 (n = 50), day 9 (n = 40), day 24 (n = 35) and day 38 (n = 28). The more positive an estimate is, the higher the probability of a SL score of 0 is. The more negative an estimate is, the higher the probability of a SL score of 3 is. Both LBW piglets that were sham drenched and not drenched had the highest risk of SL after weaning (Ordinal logistic regression, p = 0.0005). There was no difference in probability to have more SL when comparing sham drenched piglets (n = 37) to untreated piglets (n = 39) (p = 0.2469).

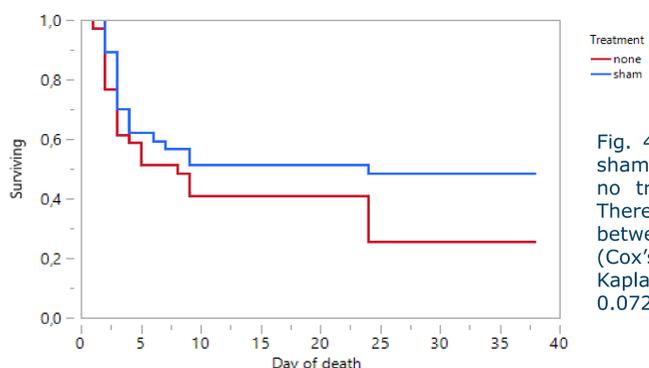


Fig. 4. Mortality of piglets that were sham drenched (n = 37) or received no treatment (n = 39) over time. There was no significant difference between the 2 treatment groups (Cox's proportional hazard model, Kaplan-Meier survival plot, p = 0.0721).

Conclusion

The act of drenching did not affect the BW during the drenching period, the suckling period and after weaning. The risk of SL was not increased either by drenching the animals. Although there was no significant difference in mortality between the treatment groups, drenching showed a potential decrease in mortality when compared to the pigs that were not handled. Thus, **drenching did not impose a significant stress** to the piglets and can be applied safely.

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