OXYTOCIN CHANGES IN SALIVA OF SOWS KEPT IN DIFFERENT FARROWING SYSTEMS

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Farrowing systems can influence the behaviour of sows during lactation -including their interaction with piglets and ability to move around-, hence improving their welfare. Oxytocin has been associated with positive emotions, and consequently to welfare improvement. The purpose of this study was to compare the welfare of sows through salivary oxytocin concentrations in three different farrowing systems during lactation and shortly after weaning. They were: farrowing crate (FC) and two different farrowing pens with temporary crating: SWAP and JLF15. SWAP and JLF15 had a crating period from 1-day pre-expected farrowing date to 3 days after farrowing, whereas FC had a larger crating period from entry to weaning. The main difference between SWAP and JLF15 was the pen size (3 x 2 m in SWAP and 2.40 x 2.40 m in JLF15) and, additionally, SWAP is designed in a way where the sows can have different spaces (resting, dunging, and feeding areas). Sows nursed their own piglets. Saliva samples from each sow (n=17; 6 housed in SWAP, 6 in JFL15, and 5 in FC) were collected at six different points during lactation and after weaning, relative to the time of farrowing: day 2 (1-day before opening the crates in SWAP and JLF15; FC sows remained crated), day 4 (1-day after opening the crate in SWAP and JLF15, FC sows remained crated), day 12 (mid-lactation), day 23 (end lactation), day 25 (1 day post-weaning), and day 26 (2 days post-weaning). Salivary oxytocin concentrations were measured using an AlphaLISA method validated in pig saliva. The results showed that SWAP sows had higher oxytocin values than FC sows on day 2 (SWAP: 1134 pg/mL; FC: 482.8 pg/mL; P=0.02). When oxytocin values were compared at different time points in each system, in the SWAP, oxytocin concentrations were higher on D2 (1134 pg/mL) and D4 (860 pg/mL) than D26 (320.2 pg/mL) (P=0.01 and P=0.05, respectively), and were higher on D2 than D25 (672.8 pg/ml) (P=0.02). In the JLF15, oxytocin concentrations were higher on D2 (455.2 pg/mL) than D23 (313.2 pg/mL) (P=0.04). Finally, in the FC, oxytocin concentrations on D4 (575 pg/mL) were higher than D23 (224 pg/mL) (P=0.02). In conclusion, the increased oxytocin values in the SWAP compared to the FC, as well as the higher values at the beginning of lactation in temporary crating systems might suggest an improvement in the welfare of sows in temporary crating systems compared to the conventional system.