BRIEF COMMUNICATION

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Influence of postpartum cloprostenol injection on sow and litter performance

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Anything that compromises sow milk yield would be expected to have a negative impact on piglet performance. Periparturient hypogalactia syndrome has been associated with endometritis.[1] Most sow herds have some incidence of endometritis, with reported incidences ranging from 1.1%–37.2% for different herds.[2] Recent interest has focused on the postpartum administration of prostaglandin $F_{2\alpha}$ ($PGF_{2\alpha}$) or its analogs, which have been reported to reduce the incidence of vulval discharge and improve piglet weight gains (Pascual; *Proc 12th IPVS Cong*, 1992;2:495).[3] It is possible that these two effects are causally related, and that $PGF_{2\alpha}$ facilitates the evacuation of uterine debris postpartum, reducing the incidence of endometritis and allowing the sow to express her milk yield potential. Additionally, by facilitating uterine cleansing, administering $PGF_{2\alpha}$ could improve postweaning fertility (Pascual; *Proc 12th IPVS Cong*,1992;2:495. Sanmartin; *Proc 12th IPVS Cong*, 1992;2:497).

The present experiment was undertaken to investigate the efficacy of cloprostenol (Planate™, Schering Canada, Quebec) administered within 24 hours postfarrowing to improve piglet preweaning growth and sow reproductive performance after weaning.

Materials and methods

During a 2-month period, mixed-parity sows of Yorkshire × Landrace breeding from an 800-sow farrow-to-finish farm in Alberta were used in this study. At farrowing, the sows were to be alternately allocated to one of two treatment groups:

- a $PGF_{2\alpha}$ group that received an intramuscular (IM) injection of 175˘µg of cloprostenol ($PGF_{2\alpha}$) within 24 hours after completing farrowing (n = 80). Sows that farrowed overnight were injected the next afternoon, whereas sows farrowing during the day were injected the next morning;
- a control group that received no injection (n = 117).

The higher number of sows in the control group was not intentional.

Targeted lactation length was 26 days and the producer reported no clinical concerns. Individual pigs were weighed at birth and at weaning. Cross fostering was restricted to sows within the same treatment; otherwise, the sows were handled according to standard farm procedures and health protocols.

Litter performance was evaluated by:

- piglet average daily weight gain (ADG) to weaning, and
- preweaning mortality.

Sow performance was evaluated by:

- weaning-to-estrus interval,
- farrowing rate to service at the first postweaning estrus, and
- subsequent litter size.

Sows with wean-to-estrus intervals ≥25 days were designated 'anestrus' to minimize the potential for including sows bred after their second postweaning estrus. Data from these anestrus sows were not included in the analysis of sow reproductive performance.

Statistical analysis

Data for the outcome variables (litter size born alive, litter size weaned, lactation length, parity, piglet growth rates, preweaning mortality, wean-to-estrus interval, and subsequent litter size) were analyzed using the GLM procedure of SAS (Statistical Analysis Systems Institute Inc., Cary, North Carolina). Class variables included in the analyses were treatment and breed. Parity was used as a covariable in the analysis of litter size born alive, litter size weaned, and lactation length. Both parity and lactation length were used as covariates in the analysis of preweaning mortality, piglet growth, wean-to-estrus interval, and subsequent litter size. The proportion of sows bred by 7 and 25 days after weaning and farrowing rates were examined by $\chi^{2.}$

Results

Treatment had no effect on either preweaning piglet growth and survival or on postweaning sow fertility (Figure 1).

Discussion

The lack of evidence that postweaning sow fertility and preweaning piglet growth differed with $PGF_{2\alpha}$ treatment contrasts to previous studies, which reported that $PGF_{2\alpha}$ injections tended to improve litter preweaning growth and survival and sow reproductive performance (Pascual; *Proc 12th IPVS Cong*, 992;2:495. Sanmartin; *Proc 12th IPVS*, The Hague, 1992;2:497. Murphy; *Proc AASP Annual Meeting.* 1997:249–253).[3] However, the treatment effects noted by Morrow, et al.,[3] were very small and not statistically significant. As in the present study, the herd investigated in the Morrow study did not have a history of vulval discharge or reproductive problems. Murphy and Friendship (Murphy; *Proc AASP Annual Meeting.*

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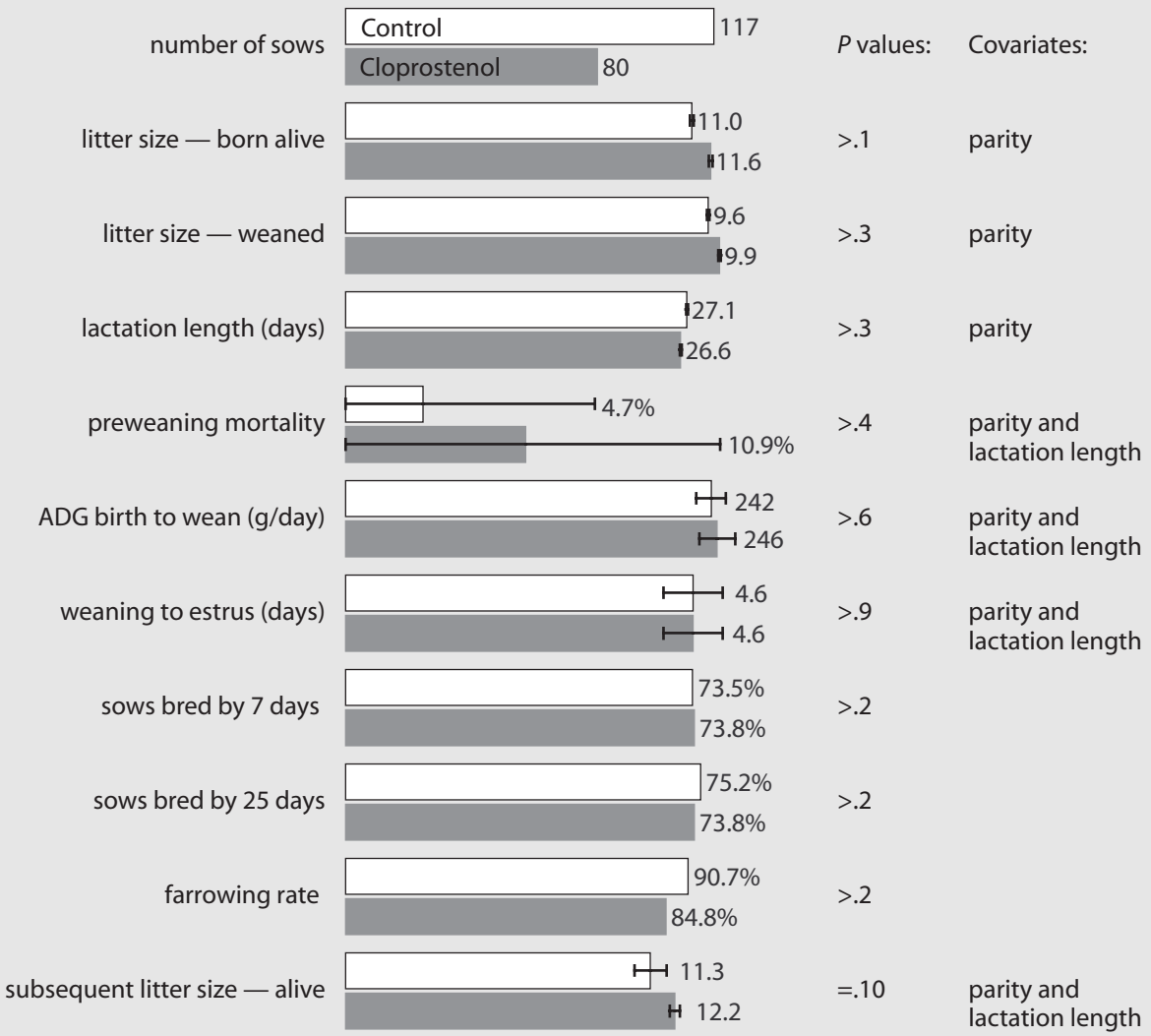
Figure 1



Influence of postpartum cloprostenol injection on sow and litter performance (least-squares means ±95%CI)

1997:249–253) observed a statistically significant improvement in piglet growth in a herd in which $PGF_{2\alpha}$ was administered intravulvally after farrowing, but the herd in their study had a 27% prevalence of vulval discharge shortly after farrowing. However, the significance of these data are unclear because, while growth was enhanced for litters suckling $PGF_{2\alpha}$-treated discharging sows compared to those suckling nontreated nondischarging sows, there was no effect compared to litters suckling nontreated discharging sows. Therefore, it is possible that the effect of the $PGF_{2\alpha}$ was unrelated to the sow vulval discharge history. Murphy and Friendship (Murphy; *Proc AASP Ann Meet.* 1997:249–253) also observed higher ADG in piglets from discharging/cloprostenol-treated sows than in those from nontreated/nondischarging sows. Possible explanations of this interesting observation were not discussed, but it is possible that many of the nondischarging sows were suffering subclinical endometritis with an associated reduced milk yield.

Based on the data from the present study and the literature, we conclude that, in the absence of a vulval discharge problem, there is no indication for administering $PGF_{2\alpha}$ to sows postpartum.

Implications

In the absence of a vulval discharge problem, the use of postpartum cloprostenol (or other $PGF_{2\alpha}$) will not improve sow and litter performance.

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