

การเหนี่ยวนำการคลอดในแม่สุกรด้วยเฟนโพรสตาลินกับออกซีโตซิน

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บทคัดย่อ

แม่สุกรตั้งท้อง 112 - 113 วัน จำนวน 59 ตัว ถูกสุ่มแบ่งออก 2 กลุ่ม ๆ หนึ่ง
 ทองที่ 1 - 6 จำนวน 39 แม่ ได้รับการฉีดสารโพรสตากลนดิน ชนิดสังเคราะห์เฟนโพร
 สตาลินขนาด 0.5 มิลลิกรัม (มก.) เข้าใต้หนัง อีก 20 ชั่วโมงต่อมาได้รับการฉีดออก
 ซีโตซิน 10 หน่วย เข้ากล้ามเนื้อ ส่วนในกลุ่มเปรียบเทียบ ทองที่ 1 - 5 จำนวน 20 แม่
 ได้รับการฉีดเฉพาะเฟนโพรสตาลิน 0.5 มก. โดยเฉลี่ยลูกสุกรแรกคลอด, คลอดมีชีวิต,
 เปอร์เซ็นต์ลูกกรอก, ลูกตาย, ผิดปกติ น้ำหนักแรกคลอด (กก.) และระยะเวลาคลอด(ชม.)
 ระหว่างกลุ่มที่ได้รับยาและกลุ่มเปรียบเทียบมีค่าใกล้เคียงกัน 10.3 ± 2.4 เทียบกับ 10.7
 ± 3.3 , 9.9 ± 2.2 เทียบกับ 10.3 ± 3.3 , 1.5 เทียบกับ 1.9 , 2.5 เทียบกับ
 1.9 , 0 เทียบกับ 0.5 , 1.3 ± 0.2 เทียบกับ 1.3 ± 0.2 และ 4.6 ± 3.0 เทียบกับ
 4.9 ± 3.9 ตามลำดับ แม่สุกร 7.7 % (3/39) และ 20.0 % (4/20) ในกลุ่มที่
 ได้รับยาและกลุ่มเปรียบเทียบตามลำดับ คลอดภายในเวลา 14.2 ± 6.7 และ 12.7 ± 5.8
 ชั่วโมง ($P > 0.05$) ในขณะที่แม่สุกรส่วนใหญ่ 92.3 % (36/39) และ 80.0 % (16/20)
 ของกลุ่มที่ได้รับยาและกลุ่มเปรียบเทียบตามลำดับ โดยเฉลี่ยคลอดภายในเวลา 22.4 ± 2.5
 และ 27.4 ± 5.0 ชม. ($P < 0.01$) ผลข้างเคียงที่พบคือ 10 - 15 นาทีหลังจากฉีดเฟนโพร
 สตาลินมีจุดเลือดออกตรงบริเวณที่ฉีด จะค่อย ๆ หายไปภายในเวลา 2 สัปดาห์ ผลการศึกษา
 นี้ชี้ให้เห็นถึงประโยชน์ที่ได้จากการใช้ ออกซีโตซินร่วมกับเฟนโพรสตาลิน ในการกำหนดเวลา
 คลอดได้แม่นยำขึ้น

INDUCTION OF FARROWING BY USING FENPROSTALENE AND OXYTOCIN

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- * Paper Presented at 25th Annual Conference,
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ABSTRACT

Fifty nine late pregnant sows (day 112-113) were randomly allotted into 2 groups, treated group (n = 39) parity 1-6 was subjected to prostaglandin F 2 alpha analogue, fenprostalene 0.5 mg, treatment and 20 h later they were injected with oxytocin 10 i.u. While for control group (n = 20), parity 1-5, received only fenprostalene 0.5 mg. Reproductive performance of sows in terms of average piglets born, born alive, % mummy, % born dead, % abnormality, average birthweight (Kg.) and parturition length (h) of the treated and control animals were similar; 10.3 ± 2.4 VS 10.7 ± 3.3 , 9.9 ± 2.2 VS 10.3 ± 3.3 , 1.5 VS 1.9, 2.5 VS 1.9, 0 VS 0.5, 1.3 ± 0.2 VS 1.3 ± 0.2 , and 4.6 ± 3.0 VS 4.9 ± 3.9 respectively. Seven point seven per cent (3/39) and 20.0 per cent (4/20) of treated and control sows respectively farrowed on average 14.2 ± 6.7 h and 12.7 ± 5.8 h ($P > 0.05$). While 92.3 per cent (36/39) and 80.0 per cent (16/20) of treated and control animals respectively farrowed on average 22.4 ± 2.5 h and 27.4 ± 5.0 h ($P < 0.01$). Ten to fifteen minutes after fenprostalene injection, ecchymotic haemorrhage was found on the site of injection but disappeared within 2 weeks. These findings indicate the advantage of using oxytocin in combination with fenprostalene for induction of farrowing in pig.

Introduction

Advantages of induction of farrowing by using prostaglandin both natural and analogue in sows had been demonstrated in our tropical conditions (Chantaraprateep et al., 1982; Chantaraprateep et al 1986a, b; Rungsrirawad et al., 1983; Virakul et al., 1981). Furthermore, synchronization of farrowing is more precise if oxytocin is combined (Blaisot and Steffan, 1984; Chottianchai et al., 1985; Chantaraprateep et al., 1986b) particularly with smaller dose, 10 and 20 iu (Chantaraprateep et al., 1986b). Recent report by Siricoon and Kunavongkrit (1986) indicated that fenprostalene, a new analogue of prostaglandin induced farrowing up to 90 % during 20 to 31h post injection. The present field trial was designed to evaluate the benefit from using fenprostalene combines with a unique dose of 10 iu oxytocin for induction of farrowing in late pregnant sows. The unique dose of 10 iu oxytocin was chosen as at this low dose parturition occurred earlier than those higher dose 30 iu (Chantaraprateep et al., 1986b)

Materials and Method

Animals : fifty nine late pregnant crossbred sows (day 112-113) from a commercial piggery of 1100 sows at Nakorn Pathom province were used. Fenprostalene (Synchrocept, Syntex, USA) contains 0.5 mg/ml and oxytocin (Leo, Denmark) contains 10 iu/ml were used.

Methods : The experimental sows were randomly allotted into 2 groups, as shown in table 1 treated group using 39 sows, parity 1-6 was subjected to the injection of 0.5 mg (ml) fenprostalene subcutaneously and 20h later they were injected with oxytocin 10 iu (1ml) intramuscularly. While for the control animals (n = 20), parity 1-5, received only fenprostalene 0.5 mg. The fenprostalene treatment was carried out at approximately 12.00h. The second injection was made at about 08.00h on day 113 or 114 of gestation. Sows that farrowed prior to the second injection were excluded and other sows which similar to them in terms of parity were recruited for that group. Reproductive

traits studied were total born piglets, born alive, born dead, mummy, abnormality, average birth weight and parturition length as well as commencement of farrowing after the treatment of both groups. Proportion t'test used to determine the difference between rate and mean (Snedecor and Cochran, 1980). The experiment was conducted during October to December 1985.

Table 1 Allotment of experimental animals according to treatments

Group	No. of animal	Treatment	
		First	Second
I (Treated) *	39	PGF 2 a *	Oxytocin **
II (Control)	20	PGF 2 a	-

* fenprostalene 0.5 mg (1ml)

* Oxytocin 10 iu (1ml) injection 20 h after PGF 2 a

Results

The treated and control animals were similar both in terms of parity and gestation length as shown in table 2

Reproductive performance at parturition as demonstrated in table 3, average piglets born, born alive, % born dead, % mummy, % abnormality, average birth weight (kg) as well as parturition length (h) were similar both in treated and control animals.

Three (7.7 %) and 4 (20.0 %) in the treated and control animals farrowed 14.2 ± 6.9 and 12.7 ± 5.8 h post fenprostalene injection respectively and they were not different significantly as shown in table 4. While for the rest, 36 (92.3 %) and 16 (80.0 %) in the treated and control animals respectively farrowed 22.4 ± 2.5 and 27.4 ± 5.0 h ($P < 0.01$) post treatment.

Ecchymotic haemorrhage was found on the site of injection but gradually disappeared within 2 weeks.

Table 2 General characteristics (mean \pm S.D.) of studied animals.

Characteristics	Group		P-value
	I (Experiment) n = 39	II (Control) n = 20	
Parity, (Range)	3.3 \pm 1.2 (1-6)	3.3 \pm 1.2 (1-5)	NS
Gestation. length (days) (Range)	112.4 \pm 0.5 (112-113)	112.6 \pm 0.5 (112-113)	NS

Table 3 Number of total piglets born, piglets born alive, % mummy, % born dead and % abnormality.

	Group		P-value
	I (Treated) n = 39	II (Control) n = 20	
Average piglets born			
x \pm SD	10.3 \pm 2.4	10.7 \pm 3.3	NS
(Range)	(6-15)	(3-16)	
Piglets born alive			
x \pm SD	9.9 \pm 2.2	10.3 \pm 3.3	NS
(Range)	(6-15)	(3-16)	
% Mummy	1.5	1.9	NS
% Born dead	2.5	1.9	
% Abnormality	-	0.5	NS
Average birth weight (kg)			
x \pm SD	1.3 \pm 0.2	1.3 \pm 0.2	NS
(Range)	(0.8 - 1.8)	(0.8-2.0)	
Parturition length (h)			
x \pm SD	4.6 \pm 3.0	4.9 \pm 3.9	NS
(Range)	(0.6 \pm 11.4)	(0.9 \pm 18.8)	

Table 4 Interval from the first injection to commencement of farrowing

	Group		P-value
	I (Experiment) n = 39	II (Control) n = 20	
<u>< 20 h</u>			
Number	3 (7.7%)	4 (20.0%)	NS
$\bar{x} \pm$ SD (h)	14.2 \pm 6.7	12.7 \pm 5.8	NS
(Range)	(6.5 - 18.7)	(5.3 \pm 19.3)	
<u>> 20 h</u>			
Number	36 (92.3%)	16 (80.0%)	NS
$\bar{x} \pm$ SD (h)	22.4 \pm 2.5	27.4 \pm 5.0	P<0.01
(Range)	(20.3 - 29.7)	(21.1 - 37.1)	

Discussion

Similar average parity (3.3 VS 3.3) and gestation length (112.4 VS 112.6 days) of both experimental animal groups help reducing variable if it happens to be due to the 2 factors.

Reproductive performance of sows at parturition in this study were not different between the 2 groups studied and were also similar to those of our previous reports (Chantaraprateep et al., 1986 a,b).

About 11.8 % (7/59) of fenprostalene treated sows from both groups farrowed prior to 20h after the treatment, their average piglets born was 10.6 \pm 4.2 when compared to those born later 10.2 \pm 2.3. This phenomenon was also occurred in our previous studies as these animals possessed on average bigger litter size than those farrowed after 20h of the treatment (Chottianchai et al., 1985; Chantaraprateep et al., 1986b). The interesting thing to note is that on the sows treated with fenprostalene combined with oxytocin farrowed within a more precise time 22.4h post treatment whereas it was 27.4h in the

fenprostalene treated animals. These findings revealed the advantage of supervision at the time of farrowing by using the combination treatment.

Acknowledgement

Staff members at Thai Rungkit Farm, Nakorn-Pathom were acknowledged for their co-operation.

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