The Indian Journal of Animal Reproduction: 23(2): 157 - 160; December 2002

Effect of intrauterine and oral therapy during periparturient period in sow

N.K. SINGH[1], BALRAJ SINGH[2], A.K. SINHA[3], M.P. SINGH[4] AND S.K. SINGH[5]

Department of Veterinary Gynaecology & Obstetrics
Ranchi Veterinary College, Ranchi, Jharkhand - 834 007

Received : September 9, 2000
Accepted : July 18, 2002

ABSTRACT

The study was conducted on 73 sows of T x D (Tamworth x Desi) breed. The sows were attotted under six groups and various treatment viz. Gestaforte vet bolus (group T_1), uterotone and (group T_2), both orally and Betadine liquid intrauterine along with payapro bolus orally (group T_3), and only Betadine liquid intrauterine (group T_4) were initiated within 24 hours of farrowing. Two groups (group C_1 and C_2) were kept as control. Significantly ($P<0.05$) higher weight was recorded in piglets of sows treated with Gastaforte vet bolus (group T_1) and uterotone liquid (group T_2). Litter weight also increased significantly ($P<0.05$) at different ages of piglets belonging to the sows of above two treated groups. Average post weaning fertile estrus was found shortest in sows belonging to intrauterine medication groups, though the effect of treatment on the interval of fertile estrus was non-significant.

Key Words: Periparturient, litter weight, fertile estrus, post farrowing conception

Increased litter size, minimum piglet mortality, early post-partum breeding and a satisfactory rate of weight gain by the piglets are the essential parameters for achieving higher economic gain to a pig unit. Several techniques are available through which the reproduction potential of gilts and sows could be exploited for maximising the gain. Present study was undertaken to determine the effect of different therapeutic agents on litter weight, weight gain and interfarrowing interval when administered in sows during periparturient period.

MATERIALS AND METHODS

The study was conducted on T & D (Tamworth x Desi) breed of pigs maintained at Pig Breeding Farm, Ranchi Veterinary College, Birsa Agricultural University, Ranchi. The pigs were maintained on identical ration schedule, uniform housing and managemental conditions. They were regularly vaccinated against contagious and infectious diseases. Estrus detection was done visually twice a day morning and evening with the help of trained staffs. During late gestation and at the time of farrowing they were maintained in farrowing pens with creep boxes. They were watched closely and proper assistance was provided to the new born piglets to prevent them from overlying. The needle teeth of piglets were nipped and were given identification mark by ear notching. Assistance was also provided to the new borns to suckle their dam particularly to the weaker ones and all the piglets were allowed to remain with their dam till 8 weeks. The farrowing pen was cleaned thoroughly after the birth process completed. The selected sows (n = 73) were allotted under six groups. The treatments were initiated within 24 hours of farrowing. Group T_1 (n = 20) were administered Gestaforte Vet bolus ((TTK Pharma limited orally at the rate of one bolus twice daily for 10 days, whereas group T_2 sows (n = 10) received uterotone liquid (Cattle Remedies India Limited) at the rate of 15 ml twice daily for 10 days. Group C_1 (n = 100 was kept as control for both groups T_1 and T_2. Group T_3 sows (n = 11) were infused with 100 ml Betadine liquid (Win Medicare) once through intrauterine route along with payapro bolus (Dabour Ayurvet Limited) at a dose rate of one bolus twice daily for 10 days. Group T_4 sows (n = 12) received 100 ml Betadine liquid through intrauterine route and group C_2 sows (n = 10) served as control where 100 ml sterile

[1]Junor Research Fellow, Deptt. of Animal,
Corresponding author - [2]Associate Professor, [3]Head and Chairman, [4]Associate Professo, [5]Associate Professor, Deptt. of Animal Breeding & Genetics.

distilled water was infused for one day.

Body weight of all the piglets were recorded at birth and at days 10, 20, 30, 40, 50 and 56 of farrowing. Duration of post farrowing fertile estrus of each sow was also recorded. Statistical analysis was done according to the metods suggested by Snedecor and Cochran (1968).

RESULTS AND DISCUSSION

Weight at different ages : The average weight of piglets (Table 1) was significantly ($P<0.05$) higher belonging to sows treated with oral therapy i.e. Gestaforte vet bolus (T_1) and uterotone liquid (T_2) than their control group (C_1). On the other hand differences among piglets belonging to sows treated with intrauterine therapy was non-significantly different in most of age group as compared to their control groups (C_2).

Average birth weight of piglets ranged from 0.96±0.01 kg (T_3) to 1.09±0.02 kg (C_1). Birth weight has been reported to vary due to month of farrowing, age of sow, parity, genetic group, gestation length, litter size, season of farrowing, sex of piglets, age at farrowing and sire breed of (Schlindweing *et al.*, 1979; Singh *et al.*, 1979; Mishra *et al.*, 1989; Singh *et al.*, 1992 and Singh and Devi, 1997). On day 56, weight of piglets in treatment groups ranged from 6.46±0.18 kg (T_3) to 7.60±0.20 kg (T_2) as compared to 6.43±0.21 kg and 6.67±0.18 kg in their control groups C_1 and C_2, respectively. These values are in consonance with Garcia *et al.* (1989) but are lower than those of Singh *et al.* (1992). Reports are scanty with regard to post farrowing intrauterine/oral therapy in sows and its effect on piglet weight at graded time interval. However, Wawron (1996) reported that intrauterine therapy has a positive effect on piglet weight. Novertheless, during the present study the groups T_3 and T_4 which were administered intrauterine therapy had piglets of lower weaning weight in comparison to other two groups T_1 and T_2 where only oral therapy was administered and the difference were highly significant ($P<0.01$).

It was also observed that increase in weight of piglets was more in group T_1 and group T_2 in comparison to group T_3 and group T_4. The groups T_1 and T_2 also differed significantly from their control (C_1). Gestaforte vet bolus has a composition of various indigenous components and essential minerals which might be responsible for general well being of the sows with probably increase in milk yield. Therefore it is presumed

Table 1. Average weight (kg) of piglets at different ages in different treatment groups

Treatment Groups	Age (days)					
	At birth	10	20	30	40	50	56
T_1	1.07±0.02^{ab} (155)	2.48±0.002^{a} (144)	3.62±0.07^{a} (137)	4.72±0.084^{a} (134)	5.85±0.10^{a} (134)	6.88±0.13^{a} (134)	7.55±0.05^{a} (134)
T_2	0.99±0.02^{c} (74)	2.30±0.66^{b} (70)	3.55±0.11^{a} (63)	4.78±0.14^{a} (63)	5.92±0.17^{a} (63)	6.97±0.18^{a} (63)	7.60±0.20^{a} (63)
C_1	1.09±0.02^{a} (75)	1.91±0.04^{d} (74)	2.88±0.08^{b} (69)	3.83±0.13^{b} (66)	4.85±0.16^{b} (64)	5.84±0.18^{bc} (64)	6.43±0.21^{b} (64)
T_3	0.96±0.01^{c} (79)	2.10±0.04^{c} (75)	2.92±0.004^{b} (73)	3.76±0.09^{b} (73)	4.68±0.13^{b} (72)	5.51±0.15^{c} (71)	6.46±0.18^{b} (71)
T_4	1.00±0.02^{bc} (85)	1.92±0.07^{d} (80)	2.93±0.01^{b} (78)	3.92±0.12^{b} (77)	4.81±0.17^{b} (76)	5.79±0.21^{bc} (74)	6.51±0.23^{b} (74)
C_2	1.03±0.02^{abc} (73)	1.91±0.04^{d} (72)	2.88±0.08^{b} (66)	4.02±0.12^{b} (63)	5.06±0.15^{b} (63)	6.12±0.17^{b} (63)	6.69±0.18^{b} (63)

Figures in parentheses indicate number of observations. Means under the same superscripts did not differ significantly witin the column.

that piglets of group T_1 received more milk in comparison to other groups which which helped them to acquire higher body weight at the time of weaning. Uterotone liquid has been claimed to act as uterine tonic and galactagogue as well.

However, the galactagogue effect of payapro through increased weight gain in piglets was not discernible in piglets from sows of groups T_3 which received both payapro and intrauterine Betadine liquid. Singh and Gusain (1998) observed higher weight gain in the piglets of sows treated with Exapar (herbal uterine cleanser) and payapro (galactagogue) as compared to control. They concluded that payapro effectivley prevented agalactia/hypoglactia in treated sows. It is presumed therefore, that intrauterine therapy in sows may not be as beneficial as in cattle, or repeated intrauterine therapy may be required for better results.

Litter weight at different ages : The litter weight has been presented under Table 2. Significantly ($P<0.05$) higher litter weight at 20th, 30th, 50th and 50th days of age was resulted in T_1 and T_2 groups in comparison to their control. Higher litter weight of piglets in sows fed gestaforte vet bolus (T_1) and uterotone liquid (T_2) might be due to increased milk yield of sows by providing essential macro and micronutrients to them.

Average litter weight at weaning in groups T_1 and T_2 (50.56±2.39 and 47.91±1.45 kg, respectively) was significantly higher than their control group (C_1 41.16±3.08 kg) besides T_3 (41.71±2.58 kg), T_4 (40.13±2.10 kg) and C_2 (42.25±2.93 kg). However, differences among later four groups were nonsignificant. The findings clearly indicated that oral therapy group of sows showed higher litter weight at weaning in comparison to intrauterine therapy groups of sows. The results could not be compared due to lack of similar type of informations. However, litter weight in this study was higher than those reported by Mishra *et al.* (1990), almost similar to the findings of Johar *et al.* (1975) and lower than the report of Sharma and Mishra (1989).

Post weaning fertile estrus : Sshortest interval from weaning to fertile estrus (Table 3) was recorded in sows belonging to intrauterine medication viz. T_4 (10.58±1.86 days) and T_3 (16.54±4.05 days) than those of oral medication groups (T_1 26.00±5.66 days; T_2 32.60±6.98 days). This might be attributed to antiseptic property of providone iodine which probabably helped in cleaning the uterus post farrowing. Kato *et al.* (1990) also recorded

Table 2. Average litter weight (kg) of piglets at various ages in different groups

Treatment Grops	No. of observations	Average litter weight of piglets at different age (days)						
		At birth	10	20	30	40	50	56
T_1	20	3.34±0.61^a	17.87±1.42^a	24.60±1.46^a	31.65±1.66^a	39.21±1.92^a	46.10±2.22^a	50.56±2.39^a
T_2	10	7.31±0.64^a	16.08±1.21^{ab}	22.38±1.35^a	30.12±1.36^a	37.33±1.26^a	43.94±1.45^a	47.91±1.45^a
C_1	10	8.19±0.18^a	14.15±0.60^b	19.88±1.23^b	25.30±1.49^b	31.05±2.00^b	37.36±2.60^b	41.16±3.08^b
T_3	11	6.93±0.44^a	14.34±1.12^b	19.37±0.95^b	24.93±1.51^b	30.66±1.57^b	35.56±1.59^b	41.71±2.58^b
T_4	12	7.10±0.56^a	12.81±1.26^b	19.06±1.15^b	25.18±1.52^b	30.45±1.72^b	35.75±1.92^b	40.13±2.10^b
C_2	10	7.51±0.53^a	13.79±1.04^b	19.02±1.36^b	25.36±1.76^b	31.87±2.28^b	38.57±2.80^b	42.15±2.93^b

Means under the same superscripts did not differ significantly.

Table 3. Average interval of post weaning fertile estrus (days) of sows in different treatment groups

Treatment groups	No. of observations	Mean±S.E.
T_1	20	26.00±5.66
T_2	10	32.60±6.98
C_1	10	26.60±6.56
T_3	11	16.54±4.05
T_4	12	10.58±1.86
C_2	10	22.20±3.42

reduction in weaning to fertile estrus in the sows treated with iodine through intrauterine route ater farrowing.

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