

REPEATED INDUCED PARTURITION BY K 11941 (PROSTAGLANDIN) MEDICATION -  
EFFECTS ON SOW REPRODUCTIVITY AND ON FARROWS.  
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Since 1973 the luteolytic effect of prostaglandin has been employed by many investigators in order to precipitate the birth process in sows. Application of prostaglandin may cause the mother individual passing restlessness, increased excreting, and reddening of the skin. Providing the birth is triggered off not earlier than the 111<sup>th</sup> day of gestation, no negative effects on the farrows are to be expected (ASH and HEAP, 1973; ROBERTSON et al., 1974; DOWNEY et al., 1976; ERNE et al., 1978; HUHN et al., 1978; JÖCHLE, 1978; HOLTZ et al., 1979; HUMKE et al., 1979; DAY, 1980).

#### Own studies:

The prostaglandin-2alpha-analogue K 11941 (Messrs. VETEM, Milan, Italy) was used on 120 breeding sows in three successive gestation periods each, to induce parturition. Repeating the test on the same material each time was to help in obtaining the answers to the following questions: 1) Is induced parturition repeatable in successive gestations? 2) Does repeated PGF<sub>2</sub>-alpha medication affect ovar function, resp. fertility, of sows? 3) Does repeated manipulated birth affect litter size and the viability of farrows?

On the 112<sup>th</sup> resp. 113<sup>th</sup> day of gestation, between 8 and 10 a.m., one deep-intramuscular injection of K 11941 was given, in three varying dosages: 1 mg = TG1; 2 mg = TG2; 3 mg = TG3. The following data were established: commencement of birth after medication, in hours; duration of birth, in hours; litter size (number of farrows born); farrow losses (stillborn, or squashed to death immediately after birth); births during daytime (6 a.m. to 4 p.m.) resp. night-time (4 p.m. to 6 a.m.) hours; occurring cases of metritis-mastitis-agalactia syndrom (MMA).

In the first test section (I; March to May, 1981) there were three control groups (CG1/I, CG2/I, CG3/I) of 50 resp. 48 sows each, to the three test groups (TG1/I, TG2/I, TG3/I) of 40 sows each.

#### Commencement of birth, after medication:

Birth began, on average, after 31,5 (TG1/I,  $s\bar{x} = 3,39$ ), 32,8 (TG2/I,  $s\bar{x} = 2,86$ ), and 24,8 (TG3/I,  $s\bar{x} = 0,90$ ) hours resp. Comparison by computation yielded a highly significant difference ( $p < 0,0003$ ) for the dosage groups TG2/I and TG3/I, and a significant one ( $p < 0,005$ ) for TG1/I and TG3/I.

#### Duration of birth:

Means in the TG1/I sows were 4,4 ( $s\bar{x} = 0,45$ ), in TG2/I 3,9 ( $s\bar{x} = 0,45$ ), in TG3/I 4,0 ( $s\bar{x} = 0,26$ ) hours, resp., as opposed to the control individuals with 5,3 (CG1/I,  $s\bar{x} = 0,58$ ), 5,2 (CG2/I,  $s\bar{x} = 0,59$ ), and 5,4 (CG3/I,  $s\bar{x} = 0,47$ ), resp. It was however not possible to separate by computation the mean values which had been established for birth duration in the two groups.

#### Litter yield:

Average litter size (number of farrows born per sow) was: in the test sows, 11,25 (TG1/I,  $s\bar{x} = 0,58$ ), 10,28 (TG2/I,  $s\bar{x} = 0,48$ ), and

11,30 (TG3/I,  $s\bar{x} = 0,52$ ), resp., while the control individuals had means of 12,88 (CG1/I,  $s\bar{x} = 0,35$ ), 11,43 (CG2/I,  $s\bar{x} = 0,44$ ), and 12,44 (CG3/I,  $s\bar{x} = 1,47$ ) farrows, resp. Stillborn farrows, and those squashed to death immediately after birth, are covered separately. Neither within the test- resp. control groups, nor between them, did computed comparison of litter sizes resp. number of stillborn and squashed farrows establish any differences.

#### Synchronised parturition:

Percentage of daytime birth was at 72,5 (TG1/I), 55,0 (TG2/I), 57,5 (TG3/I), 46,0 (CG1/I), 41,7 (CG2/I), and 50,0 (CG3/I), resp.

#### Metritis-mastitis-agalactia syndrom:

Occurrence fluctuates between 2,5 % (TG1/I), 10,0 % (TG2/I, TG3/I, CG1/I, CG3/I) and 16,6 % (CG2/I).

The second test section (II) was carried out during the months September to November, 1981, on the same material as in section I, five sows being eliminated for inner-management reasons. The number of test individuals in the three groups were 36 (TG1/II), 40 (TG2/II), and 39 (TG3/II), resp. They were balanced by groups of sows that had been given a deep-intramuscular injection of physiological sodium chloride solution of 1, 2, and 3 ml resp.; these placebo groups numbered 47 (PG2/II) resp. 48 (PG1/II and PG3/II).

#### Commencement of birth after medication:

The mean time interval between PGF<sub>2</sub>-alpha application and commencement of birth corresponded in the test individuals of the second test section to the values established in the first: 31,3, 27,2, and 28,1 hours resp., in TG1/II, TG2/II, and TG3/II; in the placebo groups this interval was notably longer: in its mean, 60,6 (PG1/II), 66,5 (PG2/II), and 59,4 (PG3/II), resp. Computed comparison of the test groups yielded no ascertained differences; comparison of the three test- with the placebo groups resulted in a significant difference ( $p < 0,001$ ).

#### Duration of birth:

In the sows from the three test groups births took, on the mean, 4,7 (TG1/II), 4,1 (TG2/II), and 3,9 (TG3/II) hours, in the placebo sows 4,3 (PG1/II), 3,8 (PG2/II), and 4,8 (PG3/II) hours, resp.

#### Litter yield:

The sows in the three groups littered, on the mean, 11,4, 12,3 and 11,2, farrows, resp.; those of the placebo groups, 12,0, 10,7 and 11,7, resp. Stillborn farrows, and those squashed immediately after birth, were also assessed; no ascertained differences could be statistically established.

Parturition synchronisation: The proportion of daytime births in the three test groups was 47,2, 72,5, and 66,6 %, resp., that in the placebo groups 64,5, 13,0, and 54,1 %, resp. The third test section (III) has not yet been concluded; its results, together with a summarising assessment of the completed test, will be presented at the congress.