

Improvement of fertility and control of metabolic disorders in transition cows

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The postpartum period is defined as the time between parturition and completion of uterine involution, around 40 days later.

Uterine involution, regeneration of endometrium, return of ovarian cyclic activity, and elimination of bacterial contaminations, return to physiological milk production as soon as possible and keeping away from metabolic disorders such as sub/clinical ketosis, abomasal displacement, milk fever and mastitis are challenges for fresh cows to overcome in this period.

The incidence of periparturient health disorders in 61 herds of high producing dairy cows was listed as 12.8% for metritis, 9% for retained foetal membranes, 3.7% for ketosis, 3.3% for abomasal displacement and 7.2% for milk fever.

Notably, the period from three weeks before parturition until three weeks after

Fig. 1. Effect of antepartum metaphylactic treatment with Catosal on first insemination success in cows with impaired liver function in the pre-parturient period (Flasshoff, 1974).

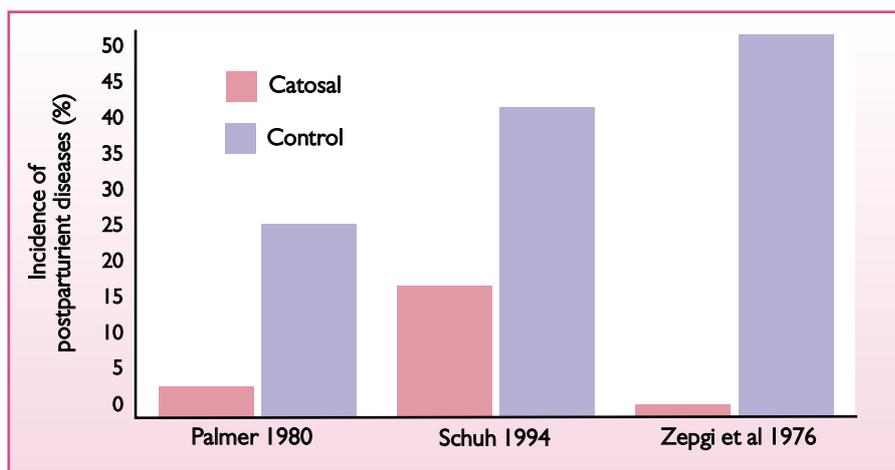
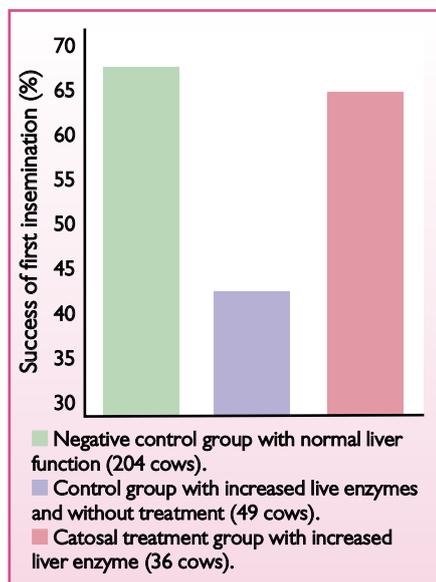


Fig. 2. Incidence of postparturient diseases after metaphylactic treatment with Catosal antepartum.

parturition is most critical. During this period, referred to as the transition period, the prevalence of the above mentioned infectious diseases and metabolic disorders is highest.

Negative energy balance is one of the important reasons for retained placenta and delayed completion of uterus involution.

Nutritional management of cows during the transition period is therefore one of the important factors which affect the susceptibility of cows.

Ad libitum feeding of cows in the antepartum period generally increases body fat mobilisation, leading to greater lipid accumulation in liver at one day after calving than restricted feed intake.

Hormonal alterations regarding insulin, insulin-like growth hormone, cortisol and thyroxine were also reported during the transition period of cows, and an inter-relationship between these hormonal changes and postpartum mastitis was postulated. These kind of disturbances during this period also leads to reduced fertility, insemination index and long open day period postpartum.

A combination of butafosfan and cyanocobalamin (Catosal injectable solution from Bayer Animal Health) has been available for about 50 years in various countries worldwide for the prevention and treatment of metabolic and fertility problems in cows. Butafosfan is a phosphonic acid derivative and cyanocobalamin is a well known form

of vitamin B12, especially important for carbohydrate metabolism and red blood cell production.

The effect of Catosal on the prevention and treatment of reproduction and metabolic disorders of dairy cows have been reported from a number of studies.

For example, Catosal (35ml in the last week of pregnancy) significantly increased the success of the first insemination after parturition by about 23% compared to an untreated control group with increased liver enzymes, thus restoring reproductive function to the level observed in a control group with normal antepartum liver function (Fig. 1).

Positive effects on fertility

Similar positive effects on reproductive function were observed in other studies. They may be related to the repeatedly observed reduction of the incidence of postparturient diseases by Catosal administered during the antepartum period. Different treatment protocols were thereby used, including for example, a treatment with 30ml Catosal on day 35 and 28 before calving, four injections of 20ml Catosal every third day starting about seven weeks before calving, three injections of 20ml Catosal between seven and three weeks or on days 28, 14, and four

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before calving, or a co-administration of 20ml Catosal and 5ml Vigantol, and ADE vitamin product, one month antepartum to cows at risk (abnormal cholesterol and GOT). Improvement of liver function, reduction of stress and stabilisation of health status resulted in decreased incidence of postparturient problems (Fig. 2).

Reduce uterine infections

A recent study in cattle in Germany showed that metaphylactic treatment with Catosal (3x10ml/100kg two weeks and one week before calving) reduced the puerperal infection incidence within five days postpartum by around 40% (Fig. 3).

Metaphylaxis with Catosal on day 35 and 28 before calving provided a beneficial effect for shortening the day-open period postpartum (Fig. 4). The beneficial effects of Catosal on reproductive function of dairy cows were recently corroborated in a study performed in a dairy farm in Spain.

Some 15 Holstein cows (Catosal group) were treated immediately postpartum (within six hours) and one day postpartum with 50ml Catosal I.V. and 1000 ml Calcio Injectable I.V. (a mineral supplement con-

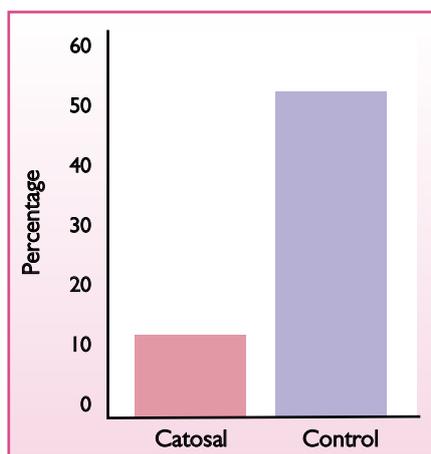


Fig. 3. Incidence of puerperal diseases in cows treated metaphylactically with Catosal during the last two weeks of the pregnancy (Deniz et al. 2009b).

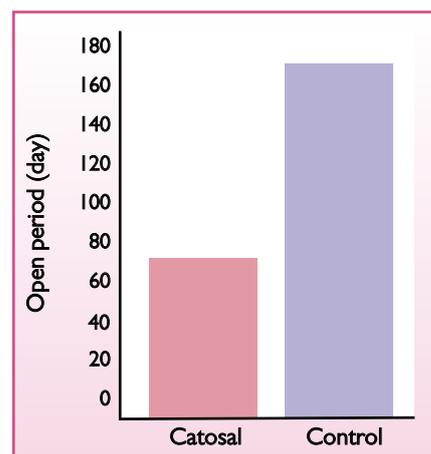


Fig. 4. Effect of antepartum Catosal application during the last month of pregnancy (30ml on day 35 and 28 before calving) on day-open period in cows (Palmer 1980).

taining 24% calcium, 6% magnesium, and 0.4% butafosfan).

Ten control cows received a total of 1050ml injectable water solution I.V. as described above. Uterus involution scores on the days 12-17 and 30-35 postpartum were significantly higher in the Catosal group. Of the 15 cows in the Catosal group, 93.5% completed their uterus involution up

to day 35 postpartum; it was only 30% in the control group (Fig. 5 and 6).

In conclusion, the metaphylactic use of Catosal around calving or antepartum proved beneficial in dairy cows in terms of prevention of postparturient diseases and fertility problems associated with the transition period. ■

Fig. 5. Uterus involution scores of cows in Catosal and control groups on days 12-17 and 30-35 postpartum (Deniz et al., 2009a).

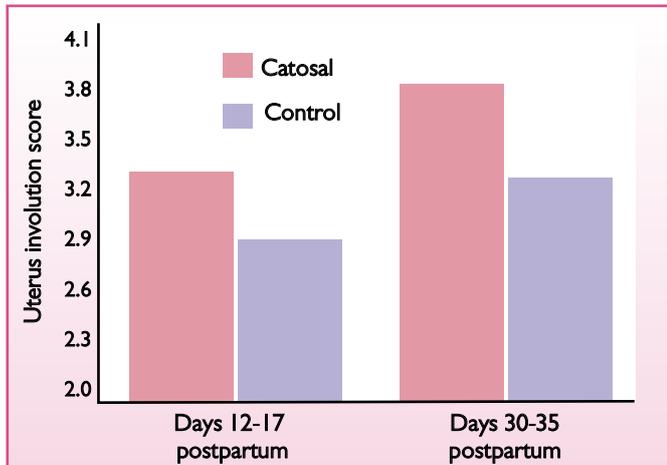


Fig. 6. Completion of uterus involution of cows in Catosal and control group up to day 35 postpartum and after 35 days postpartum (Deniz et al. 2009a).

