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Beneficial effects of Catosal® in sows and piglets: a review of recent studies

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Stress compromises pig performance and health

In the course of their life, pigs are exposed to multiple stressors such as mixing with other, unfamiliar pigs, transport or diseases. Stress, however, impairs the immune defense against pathogens and thus facilitates the occurrence of disease such as postweaning diarrhoea, mastitis-metritis-agalactia [MMA, also termed post-partum dysgalactia syndrome (PPDS)] and urinary-tract infections. Thereby, even short and transient episodes of stress may have a long-lasting negative impact on pig production and farming economy.

Catosal® reduces stress in pigs

Catosal® (synonyms Coforta® and Phosphorum B12®, trademarks of Bayer Animal Health) has been successfully used in many species including pigs for more than five decades. Major indications in pigs are the prevention and supportive treatment of peripartal disorders and fertility disturbances as well as the alleviation of disturbances of development of young animals. This tonic and metabolic stimulant contains as active ingredients 10 g butafosfan (a phosphorus-based metabolic stimulant) and 5 mg cyanocobalamin (vitamin B12) per 100 ml solution. It is available as a ready-to-use solution for parenteral injection and is currently registered for use in pigs in more than 35 nations worldwide.
Stress-reducing effects of butafosfan in pigs were demonstrated in two independent, negatively controlled, masked and randomised laboratory studies (1, 2). These studies used a model of mixing pairs of unfamiliar pigs which reflects the psychosocial stress after mixing in pig husbandry. Catosal® or a corresponding placebo formulation devoid of butafosfan was injected at the time of mixing, whereby both animals of a given pair received the same treatment. Saliva samples were collected at pre-defined time points before and after mixing for determination of salivary cortisol levels which well correlate with the circulating levels of the stress hormone in blood. Confirming the outcome of the first, orienting study (1), a significant attenuation of the stress-induced cortisol response after administration of Catosal® 0.2 ml/kg body weight was observed in a recent dose-confirmation study (2). This effect was paralleled by a reduction in aggressive behaviour in the Catosal®-treated group.
Since the effects of even short-term stressful events on health and production of pigs may be long-lasting, the potential health-stabilising effect of Catosal® resulting from its apparent stress-reducing efficacy was studied in three recent prospective, placebo-controlled and randomised field studies.

Benefit for sow performance and health

Two of these studies investigated the effects of a treatment of the farrowing sow (3,4). In the first one, conducted in a single large farm in Thailand, Catosal® or physiological saline was injected intramuscularly to groups of 25 sows each at the dose volume of 0.2 ml/kg body weight (3). The second study, performed as a multicentric study in three Mexican farms (4), involved three groups of approximately 50 sows each which were treated at farrowing with either physiological saline (placebo, 20 ml per head) or with Catosal® at fixed doses of 10 or 20 ml per head. A number of health and production parameters were followed in the sows and in their offspring.
Although these studies did not monitor exactly the same parameters for efficacy, they came up with consistent and complementary evidence for a significant efficacy of Catosal® to reduce the acute-phase response to farrowing stress, to increase calcium and phosphorus

blood levels in the sow as well as lactation intensity on the day of farrowing, to decrease the incidence of MMA/PPDS and the need of antibiotic and oxytocin treatments, respectively, and to shorten the wean-to-service interval of the sow. In line with these findings, tendencies in the favour of Catosal® were observed regarding the number of stillborn piglets in young sows and the appetite of the sows.

Benefit for piglet performance

Interestingly, the offspring of the Catosal®-treated sows also showed economically relevant benefits, such as a significant increase in growth until weaning and tendencies for reduced mortality until weaning along with an increased litter uniformity as compared to the offspring of placebo-treated sows (3, 4).

In addition to the two field studies investigating the effects of a Catosal® treatment of farrowing sows, another placebo-controlled, randomised field study investigated the effects of a Catosal® treatment of the suckling piglets (5). To this aim, piglets were treated at the time of iron injection with either Catosal® (n = 7 litters comprising 78 animals) or physiological saline (n = 6 litters comprising 67 animals), both administered intramuscularly at the dose volume of 0.2 ml/kg body weight. Starting from homogenous study groups at baseline, the incidence and duration of diarrhoea from birth to weaning was significantly decreased in the Catosal®-treated piglets as compared to controls. Severity of diarrhoea also tended to be lower and there was a reduced requirement of antibiotics to treat diarrhoea in the Catosal® group. Consistent with these finding, the average daily weight gain was higher, and piglet mortality until weaning was lower in the Catosal® group as compared to controls. These observations did, however, not achieve the level of statistical significance.

Conclusion and outlook

The recent clinical results in pigs summarised in this review provide substantial evidence for the efficacy and safety of Catosal® in the prevention of MMA/PPDS in sows and diarrhoea in piglets. The ability of Catosal® to attenuate porcine stress can be assumed to be mechanistically involved in these health-stabilizing effects, which in turn are paralleled by economically interesting benefits in terms of increased animal production.

References

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