

7. SUMMARY

Observations on periparturient paresis in Fleckvieh and Holstein-Friesian cows

During a fieldwork conducted in the year 2002, 185 cows of the Fleckvieh and Holstein-Friesian breed were observed. These cows showed parturient paresis around calving, which was suspected to be caused by hypocalcemia as in classical milk fever. In addition to the clinical findings, a blood analysis was used to help determine the etiological diagnosis in order to detect possible disorders of other organs besides the suspected alterations in the electrolyte concentrations. The following parameters were tested and evaluated in the serum: calcium, phosphorus, magnesium, AST, CK, GLDH and bilirubin.

Subsequently it was investigated whether the reduced success in treating periparturient paresis, as recorded from the field, could be confirmed. Therefore two different intravenous solutions, which contained different amounts of calcium, phosphorus and magnesium, were used alternately for treatment.

The animals in group A were treated with 500 ml Caloriphos® and those in group B were given 500 ml Calci-Tad N 25®. At the same time the animals of both groups also received an infusion of 500 ml glucose 40 %.

When comparing both groups, in regards to anamnestic and clinical findings as well as the results of the blood analysis, the cows of group A only differed by showing a significantly lower BCS and less sensory impairment.

As for the two solutions used for the infusion, an influence was neither noticed on the frequency nor on the outcome of the treatment, therefore they are considered to be equal in action.

A higher amount of younger animals, already displaying parturient paresis on the first and second lactation, was found in this trial. The first time calving cows, especially in the Fleckvieh breed, typically showed signs of muscular damage, while an isolated alteration in the electrolyte concentrations did not occur in these younger animals.

While looking for the clinical signs, it was observed that these were rather unspecific. The symptoms specifically described for hypocalcemia, such as sensory impairment, hypothermia of the skin and the rectal temperature, were rarely found. However, these symptoms were markedly more often seen in the Holstein cows. They also showed lower concentrations of calcium and phosphorus in the serum than the Fleckvieh cows. At the same time, a clear influence on the development of clinical signs by calcium and phosphorus was found in this study.

Overall, the alteration in the serum electrolytes did not differ much in comparison to the results obtained from older trials. However, the starting concentrations of calcium and phosphorus in the serum, now as before, had the strongest influence on the number of treatments needed until the patients were healed. The lower each concentration was, more infusions were necessary before the cows could rise.

Having reached a success rate of 66.5 % after only one infusion and an overall success rate of 88.6 %, a reduction in successfully treating patients with periparturient paresis could not be confirmed. Rather, the enzymes AST and CK had the most influence on the outcome of the treatment. Cows, which could not be healed, already showed significantly higher activities of these enzymes in the serum before the first treatment. In addition, these animals showed only minor or no alterations of the electrolytes. Cows, who had to be euthanized after the first treatment, also had higher concentrations of total bilirubin in the serum.

Since the muscle specific enzymes markedly influence the outcome of the treatment, an interest must be taken in preventing muscular damage before the onset of periparturient paresis as well as during its course.

Although nowadays the clinical picture does not allow a definite conclusion as for the underlying cause of the periparturient paresis, every case suspected to be caused by hypocalcemia should at first be treated as such, especially since field conditions will not allow a full blood analysis at the time of first treatment. The amount of calcium and phosphorus contained in the solution used for infusion at this time seems to be only of secondary value. The good results after treatments obtained from this study seem to favour such an action.

Nevertheless, for a definite diagnosis, a successful treatment, especially after the first one has failed, and a reasonable prognosis a blood analysis is after all inevitable. Particularly when muscular damage and liver diseases are suspected.