

7 Summary

Investigation on the treatment of subclinical endometritis with proteolytic enzymes or prostaglandin F_{2α} in dairy cows

Subclinical endometritis diagnosed by cytology in clinically healthy cows can be a reason for reduced reproductive performance. The objective of this study was to evaluate the effect of a treatment of subclinical endometritis with proteolytic enzymes or prostaglandin F_{2α} compared to an untreated control group and a group of healthy cows without subclinical endometritis.

The field trial was conducted on a commercial dairy farm in Brandenburg, Germany. In all cows a first post partum check (PPC1) was performed between 21 and 27 days in milk. In cows without pathological findings (discharge or enlarged uterus) after rectal palpation and vaginoscopy endometrial cells were collected from the uterus using the cytobrush-method. An estimated percentage of $\geq 5\%$ polymorphonuclear neutrophils (PMN) in the cytological sample was regarded as a sign for subclinical endometritis. Cows with subclinical endometritis were assigned to one of three treatment groups. In group “enzymes” cows received an intrauterine treatment with 20ml of a salve containing proteolytic enzymes (Masti Veyxym[®], Veyx Pharma GmbH, Schwarzenborn, Germany). Masti Veyxym[®] contains chymotrypsin, trypsin, papain, vitamin A and vitamin E. In group “PGF” cows were treated with an injection of 0.5 mg of cloprostenol (PGF Veyx[®] forte, Veyx Pharma GmbH, Schwarzenborn, Germany). In group “control” cows with subclinical endometritis were not treated. In all animals a second post partum check (PPC2) was performed between 35 and 41 days in milk using rectal palpation, vaginoscopy and the cytobrush-method. For the analysis of ovarian activity by progesterone a blood sample was taken at PPC1 and PPC2. A concentration above 1.0 ng/ml progesterone was considered indicative of an active corpus luteum.

Of 315 clinically healthy cows at PPC1 50.2% had a subclinical endometritis. In primiparous cows subclinical endometritis was diagnosed significantly more often than in multiparous cows. Subclinical endometritis occurred significantly more often in acyclic cows at PPC1 and PPC2 than in cows that already showed cyclic activity. Treatment of subclinical endometritis with proteolytic enzymes had positive influence on the clinical cure rate at PPC2 (58.8%) compared to the untreated control group (45.3%). The risk of an endometritis (clinical and subclinical) at PPC2 was significantly higher in group “PGF” (OR 2.1) and in the untreated control group (OR 3.0) compared to healthy cows at PPC1.

Regarding the reproductive performance there was no difference between healthy cows and cows with subclinical endometritis that were left untreated. This result is partly in contradiction to results of other studies. Therefore it would be of interest to determine the effect of subclinical endometritis detected at the time of insemination.

First service conception rate, percentage of cows pregnant, days to first service and days open as well as other reproductive parameters did not differ significantly between the treatment groups and the healthy group. The treatment with proteolytic enzymes was beneficial only in multiparous cows. Compared to multiparous cows without subclinical endometritis the probability of pregnancy increased significantly (OR 4.7) and the probability of culling decreased significantly (OR 0.2). Compared to group "PGF" conception rate increased significantly as well (OR 3.0). Therefore further considerations about pathogenesis, therapy and impact of subclinical endometritis should include the age of the animals.