Somatic Cell Counts of Dairy Cows following Homeopathic and Antibiotic Mastitis Treatment

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Introduction

Homeopathic Treatment of animal diseases is required in organic farming at least since EU Regulation 1804/99 according organic animal husbandary is valid for all organic producers. The biggest problem is the lack of knowledge about this difficult subject while few studies showed poor benefits considering cure rates in homeopathic mastitis treatment (MEANEY, 1994; EGAN, 1994). On the other hand, there are a lot of positive experiences of practitioners. Additionally, OTTO (1984) and MERCK et al. (1989) showed successful concepts of microsubstantial therapies in field studies.

Due to the requirements of a organic biydon farm in Brandenburg (Germany) a study was conducted to implement a standardized homeopathic prophylaxis and treatment approach which should be useful for inexperienced practitioners using 5 different combined remedies as shown in figure 1. The results showed partially poor cure rates compared to antibiotic treatment, especially in mastitis cases caused by major pathogens like Staph aureus and Streptococcus spsp (KLOCKE et al., 2000). In contrary to that, we observed no depression of herd udder health due to the modified therapy protocol. So it is necessary to investigate the medium term effects of homeopathic treatment to evaluate the development of udder health after laboratory investigations of milk considering somatic cell counts. The goal was to reduce antibiotic mastitis treatment, which requires at minimum equal therapy results of homeopathic treatment compared to antibiotic standard therapy.

Material and Methods

Involved in this study were 241 cases of clinical mastitis in one dairy herd in Brandenburg (D) only regarding first incidences in lactation from day 1 to 150 of lactation. After milk sampling (temperature (T), cell count (CC) and cell count investigation (CCI)), the animals were treated either local antibiotically (Group AB; n=117) or peroral homeopathically (Group HOM; n=123) using 3 combined remedies (WELEDA AG, Arlesheim, CH) depending on clinical state at application time (peracute, acute, chronic) per two a times day until clinical cure (fig1).

In case of therapy failure, animals were treated with the corresponding method (Homeopathy - Antibiosis and vice versa, Group CRX, n=47) and primarily flagged as therapy failure. 14 to 21 days after clinical cure milk samples were taken for B1 and C1O again. An animal was assessed as completely cured, if there were no pathogen bacteria in control samples and the somatic cell count showed values below 100,000/ml. The definitions for therapy failure regarding the control sample were: previous therapy change, clinical mastitis recurrence, cell count above 100,000/ml in the quarter, pathogen bacteria or culling. Animals returning to milk production were tested by milk test organisation once a month and data were sampled over 5 month at minimum (Test day Cell count analysis; TDCCA). A therapy failure in this data set was defined by not acceptable cell count (>200,000/ml), previous mastitis case, therapy change, and missing test data. The definitions are found in table 1.

The analysis was conducted for all lactating animals and for subgroups to identify the factors effecting cure rates using a logistic regression model for every TDCCA. These Variables were: homeopathy treatment group (Hom, AB, CRX), UHC (udder health class regarding cell count at the control sample), cell count findings at control sample date, and missing test data. The definitions are found in table 1.

The analysis of acceptable Cell counts in Test data analysis (TDACC) provided a decreasing difference between treatment groups. In 5th month of lactation after Mastitis treatment the ACC-Ratio (acceptable cell counts below 200,000/ml) for homeopathy in nearly all subgroups was slightly higher compared to antibotically treated cows (see fig.2). It has to be discussed, wether there is a longterm healing effect after homeopathic treatment or the self healing effects overlapping these effects. Remarkable is the very low ratio of unconscious animals 5 months after Mastitis of below 20%. This fact indicates very poor positive longterm effects after mastitis treatment independent of the kind of treatment (Fig. 2).

Discussion and Conclusion

Regarding these facts, it is discussable if the antibiotic treatment leads to very short positive effects compared to homeopathic treatment on herd basis while there is no difference in longterm benefit regarding animal cell count or leaving production. To ensure this and assess microbial state of the cows, it is necessary to investigate milk samples at the end of lactation in further studies.

For this herd it was consequently not necessary to treat mastitis with antibiotics but with a homeopathic alternative, in case of primarily therapy failure in combination with antibiosis.

Antibiosis leads to positive shortterm effects regarding guidelines of mastitis cure definitions of IDF, but it has to be discussed if these definitions take account of the economic long term effects of clinical mastitis therapy.

Furthermore, it has to be concluded that the herd environment and the mangement is able to block any therapy success and has highest preference before starting a therapy programme.

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References

Literature available from author P. Klocke@fibl.ch.

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Fig.1: Treatment protocol in both treatment groups

Homeopathy:
H1 beginning M, high fever (Azcoment D4, Apo D6, Jodum D6, Phytoparca D6)
H2 twice a day intracisternally until clinical cure (Baldah D8, Phytoparca D6)
H3 flies or clots only (Jodum D30, Nux vomica D6, Chelidonium c., Argentum D30)
Twice a day 10ml peroral until clinical cure

Antibiosis:
Standard Preparation: Ampicilline/Cloxacilline; possible change after BI to AB (n=36)
Twice a day 10ml peroral until clinical cure

Fig.2: Acceptable Cell Count Ratio (ACCR) = 100,000/ml on milk last day if < 85 after treatment (minimum 21 days) in different treatment groups (homopathic, antibiosis, Cross-over).

Table 2: Cure Rates (CR) after homeopathic, antibiotic and conditional crossover-combined treatment regarding bacteriological and cell count findings at control sample date

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<thead>
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<th>TDCCA-Analysis</th>
<th>Hom</th>
<th>AB</th>
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<tr>
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<tr>
<td>CRx</td>
<td>12%</td>
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The ACC Ratios in all groups showed no significant differences. The high amount of negative slope was observed in all groups independent of cure site. Also infections with major pathogens (Staph aureus Streplococcus) showed no ACC differences. The group of released but still subclinically infected cows was small for an analysis, but nearly no AB treated cows had acceptable cell counts during the whole observation time.

To evaluate factors of influencing Ratios of nonacceptable cell counts or drop outs, a logistic regression model was built up for every of the five test days including the factors THERAPY (Hom, AB, CRX), UHC (udder, CC<20; CC<100 in End of lactation), BAC (unspecific, other MO, major pathogenes), TYPEx (acute and chronic) and DAY (<21 days pp, >= 21 days pp). In none of the five models the therapy had a significant effect on ACC-Ratio. Only the Udder health class (UHC) was part of all 5 fitting models with Odds ratios between 2.1 and 4.4 for the UHC 1 Group (>200,000 CCEL) and 8.1 to 18.0 for the UHC 2 Group (>200,000 CCEL) compared to the heifer group. In Test Day model 4 and 5 additionally the variable BAC completed the model, but weakly significant.