RECURRENCE OF MASTITIS IN CATTLE TREATED EITHER BY ALLOPATHIC, PREVENTIVE HOMEOPATHIC OR COMBINED THERAPY

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Abstract

The aim of the present work was to assess recurrence rates of the inflammation of the mammary gland in cattle treated either with allopathic, homeopathic or combined medications. The effect of a combination of medications was greater than effects of allopathic drugs alone. Farm A – only allopathic medication (control group) – recurrence of inflammation in 3 months of application in 70.6 % of animals in the group, no recurrence in 29.4 % animals in the group. Farm A – combined medication (experimental group) – recurrence of inflammation in 3 months of application in 42 % of animals in the group, no recurrence in 58 % of animals in the group. Farm B – only allopathic drugs (control group) – recurrence of inflammation in 3 months of application in 75 % of animals in the group, no recurrence in 25 % animals in the group. Farm B – combined medication (experimental group) – recurrence of inflammation in 3 months of application in 31.3 % of animals in the group, no recurrence in 68.7 % animals in the group.

Key words: mastitis, mammary gland, cattle, homeopathy, inflammation

INTRODUCTION

One of the decisive preconditions of milk production is a fully developed mammary gland with an adequately developed secretion epithelium and corresponding anatomical and morphological characteristics (Kováč *et al.*, 2001). The process of milking is influenced by the selected milking technology, procedure used by the milker, and the dairy cow's response. A number of operations have been automated, and the reliability of milking machines has improved. Milkers' working conditions have improved significantly, and the milking procedures were also gradually adjusted. In order to optimize the process of drawing milk, i.e. to maximize milk production, the so-called "dairy cow's partnership" is essential (Tančin *et al.*, 2001). A frequent reason for the termination of, or degradation in, that "partnership", and thus also less than maximum milk yields, is the dairy cow's impaired health. One of the most serious conditions – from both the health and economical points of view – is mastitis, i.e. inflammation of the bovine mammary gland, which is therefore a disease included among production diseases (Illek *et al.*, 1997).

It is a generally accepted concept among cattle farmers that prevention is better than cure (Day, 2001). Prevention has thus been made a basis of a comprehensive set of measures aimed at inhibiting all forms of mastitis in herds (Illek *et al.*, 1997). Preventing inflammatory diseases of the mammary gland is also important from the human health point of view because a number of causative agents of mastitis pose a risk for humans as producers of enterotoxins (Shitandi and Gathoni, 2004).

One of preventive options is the use of novel approaches to animal health care, e.g. phytotherapy or homeopathic treatment that are preferentially applied in organically managed herds.

Homeopathic concept of health, disease and treatment was first described by Hahnemann in 1982. Homeopathic drugs of plant, mineral or animal origin are usually administered to patients highly diluted (Hektoen *et al*., 2004).

Homeopathic strategy is based mainly on the law of similarities. This basic principle is expressed by the Latin motto "Similia similibus curantur", i.e. the like is cured in like manner. This also marks the fundamental difference between homeopathy and allopathy, a system of therapeutics in which diseases are treated by producing a condition antagonistic to the condition to be cured (Macleod, 2002). In homeopathy, patients are administered substances that act in the same direction as the organism's overall responses, as his own defence mechanisms, i.e. substances that act in harmony with them. Results of treatment based on allopathic drugs will always depend on the accuracy of the diagnosis, the suitable choice of drugs, and, of course, on their mutual interaction. Detailed diagnosis and initial treatment should always be made by a veterinary surgeon based on the current health condition of the animal, the stage of the disease and its causative agent. When deciding on a treatment, it should also always be borne in mind that drugs may have a different affinity to milk. When antibiotics have been administered to dairy cows, their milk must be condemned for the next several days, which, especially if mastitis is widespread in the heard, may cause significant losses to the farmer. Another disadvantage, of course, is the higher costs of antibiotic treatment (Stádník *et al*. 2000).

Kowald and Millemann (2002) listed a number of reasons in support of the use of homeopathic drugs – no

milk needs to be condemned, no risk of generating germ resistance, the natural defence function of the affected mammary gland is stimulated, risk of additional diseases to the mammary gland is minimized. Boldyreva (2003) added that homeopathic drugs are harmless and have no side effects.

Homeopathy individualizes, a correct drug removes causes of the problem, symptoms of the ailment gradually disappear, an individual diagnosis is made and individual treatment and drugs are designed (Hawkey and Hayfield, 1999).

The use of homeopathic drugs is also recommended by "Act of 29 June 2000 on organic farming and the amendments to act 368/1992 Sb. on administrative fees as amended", which prioritizes their use except acute cases.

MATERIAL AND METHODS

Experiments were made on two farms with herds of Bohemian Spotted cattle that are referred to in the study as Farm A and Farm B. Both were farms specializing in fresh milk production. Cows were housed in conventional K 96 tethering barns. The barns with two lines of stalls do not allow passage of vehicles, and their central alley is equipped with a circulating manure scraper. Stalls are straw bedded, medium long. Faeces are removed twice daily, i.e. before and during milking. Stalls are also bedded twice daily, manually, after milking (problems with dust). Cows received mixed rations consisting of bulk feed with added concentrates. Rations were placed to troughs twice daily using tipping conveyor over the trough (Farm A) or overhead feeding trolleys (Farm B).

On both farms, cows are milked twice daily and milking machines with piping to stalls are used. Preparation for milking and milking itself are done identically on both farms: cows are milked one after another in stalls. For cows with impaired health of the mammary gland, cows with sensorially altered milk, cows treated with antibiotics or after calving, other milking machines are used that do not get into contact with healthy cows. Before milking, udders are washed with water and dried with a cloth. For control milk samples, vessels with a black bottom are used, udders are checked for any remaining milk before the milking machine is disconnected, no teat disinfection after milking is performed. In milk store rooms, cooling tanks for 5,000 l of milk are installed.

On each of the farms, two groups of cows, i.e. the experimental and the control group, were selected. In the control group, mammary gland inflammations were treated by classical allopathic procedures. In the experiments group, selected supportive preparations for the enhancement of the immune system of the sick animals were administered according to specific methodological guidelines for the entire period of administration of allopathic drugs during individual mammary gland inflammation cases.

If, e.g., two cows in the barn suffered of the mammary gland inflammation, one of them was assigned to the control group and the other to the experimental one.

At the end of the study, mastitis recurrence rates in individual animals were assessed. The basic study interval was a period of 3 months following the cure of the inflammation, or the application of supportive medication.

The supportive preparation was a polycomposite consisting of *Apis mellifica* (5 CH), *Belladona* (5 CH), *Conimum maculatum* (5 CH), *Hepar sulphur* (7 CH), *Phytolacca decandra* (5 CH), *Pulsatilla* (5 CH), *Pyrogenium* (7 CH), *Staphylococcinum* (5 CH) and *Streptococcinum* (5 CH). If conventional allopathic treatment went on for, e.g., 4 days, then the supportive medication was administered along with the allopathic drug for 4 days. The daily dose of 5 ml was administered orally at different times of the day. Before administration, the preparation was primed by repeated shaking against a solid base.

The administration of the allopathic drug and of the supportive drug were discontinued at the same time. The preparation was administered with the approval and under the supervision of the local veterinary surgeon. Data on the application of drugs and supportive preparations were recorded in the barn's veterinary log.

Although new cows were brought into the barn during the study, they were all first-calf heifers after their first lactation, any possibility of an infection being introduced to the herd by the newly purchased animals with latent mastitis can be ruled out.

RESULTS

The following groups of animals were compared: 24 cows with recurring inflammation of the mammary gland of a total of 34 controls that received allopathic treatment only / 8 cows with recurring inflammation of the mammary gland of a total of 19 cows receiving simultaneous allopathic and homeopathic treatments (experimental group – combined treatment).

The data obtained were statistically evaluated by the Chi-square test in the Instat – statistics programme. The Chi - square test showed $P = 0.0818$ - approaching the level of significance. The results thus seem to favour allopathic treatment combined with homeopathic remedies, in which case recurrence in the three-month period was recorded in 42% (8 cows) only, compared with 70.6% recurrence (24 cows) in the case of the allopathic treatment alone.

The following groups of animals were compared: 21 cows with recurring inflammation of the mammary gland of a total of 28 controls that received allopathic treatment only / 5 cows with recurring inflammation of the mammary gland of a total of 16 cows receiving simultaneous allopathic and homeopathic treatments (experimental group).

The Chi - square test showed that $P = 0.0117$ was statistically significant. The results thus seem to favour

allopathic treatment combined with homeopathic remedies, in which case recurrence in the three-month period was recorded in 31.3 % (5 cows) only, compared with 75 % recurrence (21 cows) in the case of the allopathic treatment alone.

DISCUSSION

In the study period, the incidence of mastitis and mastitis recurrence rates were recorded in Barns A and B. Observation results are summarized in Tab. 1 (Farm A) and Tab. 2 (Farm B), and in Figs 1 and 4. Tabs 2 and 4 and Figs 2, 3, 5 and 6 give the numbers (in %) of healthy and sick cows in the control and the experimental groups.

The data obtained have confirm that mastitis is one of the most frequent diseases and one that for farmers is economically the most devastating because it not only entails high costs of treatment but also, if allopathic medications are used, losses caused by milk condemnation. This corroborates the conclusions by Stádníka *et al.* (2000) and Kowald and Millemann (2002). It is therefore necessary to place much emphasis on herd management practices that will prevent the occurrence of such diseases (Škarda and Škardová, 2000, Illek *et al.*, 1997). Such practices are based on an active optimization of the housing conditions, and the best possible practices in care, feeding, watering and milking. Another option is offered, of course, by the use of unconventional methods of care for animal health that are now becoming more and more widespread.

Statistical evaluation of the results confirms positive effects of homeopathic drugs in combination of with classical allopathic therapeutics, and a general cooperation of the allopathic and unconventional curative techniques (Jouanny *et al.*, 1993, Vithoulkas, 1980, Issautier, 1993, Šoch, 2003). The results also showed that there are many acute cases in everyday practice that require that allopathic treatment be started immediately. Allopathic treatment may of course be later combined with a suitable homeopathic treatment – depending on the type of disease, its causative agent, response from individuals (in line with the homeopathy maxim that homeopathy individualizes, proposes individual diagnoses, individualized treatments and medications (Hawkey and Hayfield, 1999). Such a combination not only accelerates curative and healing processes, but it also helps the restoration of the original condition of the mammary gland and its secretion, the overall stimulation of the defensive function of the mammary gland, and the minimization of diseases of the mammary gland in the future (Kowald and Millemann, 2002, Striezel, 2001).

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Tab. 1: – farm A – results

count of cattles	108 ks	healths- without inflammation	34 ks
		diseaseds – with inflammation	74 ks
only allopathy medius**(control group)**	34 ks	with inflammation in 3 months	24 ks
		without inflammation in 3 months	10 ks
combined medius – allopathy + homeopathy **(experimental group)**	19 ks	with inflammation in 3 months	8 ks
		without inflammation in 3 months	11 ks

Tab. 2 : – farm A – statistical evaluation

	control group (only allopathy)	experimental group (combined medius)
with inflammation in 3 months	24 ks **(70,6 %)**	8 ks **(42 %)**
without inflammation in 3 months	10 ks **(29, 4 %)**	11 ks **(58 %)**
count	34 ks (100 %)	19 ks (100 %)

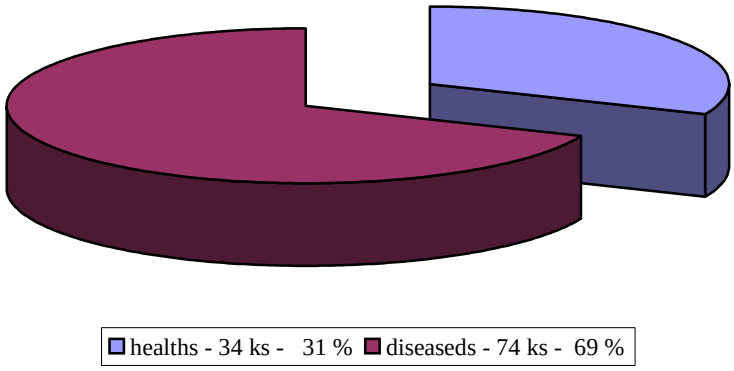
Tab. 3 : – farm B – results

count of cattles	85 ks	healths – without inflammation	41 ks
		diseaseds – with inflammation	44 ks
only allopathy medius**(control group)**	28 ks	with inflammation in 3 months	21 ks
		without inflammation in 3 months	7 ks
combined medius – allopathy + homeopathy **(experimental group)**	16 ks	with inflammation in 3 months	5 ks
		without inflammation in 3 months	11 ks

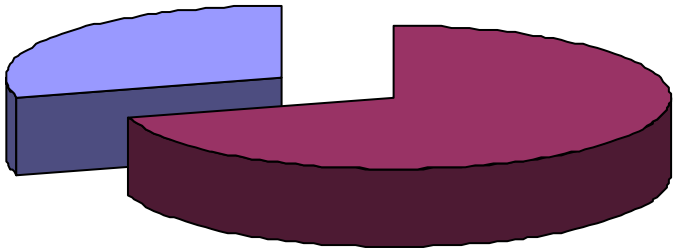
Tab. 4 : – farm B – statistical evaluation

	control group (only allopathy)	experimental group (combined medius)
with inflammations in 3 months	21 ks **(75 %)**	5 ks **(31,3 %)**
Without inflammation in 3 months	7 ks **(25 %)**	11 ks **(68,7 %)**
count	28 ks (100 %)	16 ks (100 %)

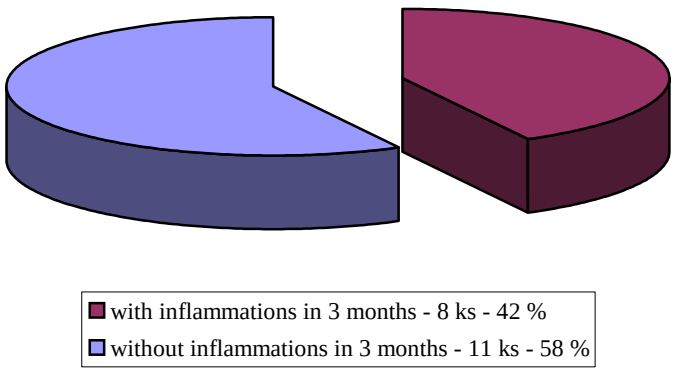
Graph 1: - farm A - count of cattles - 108 ks



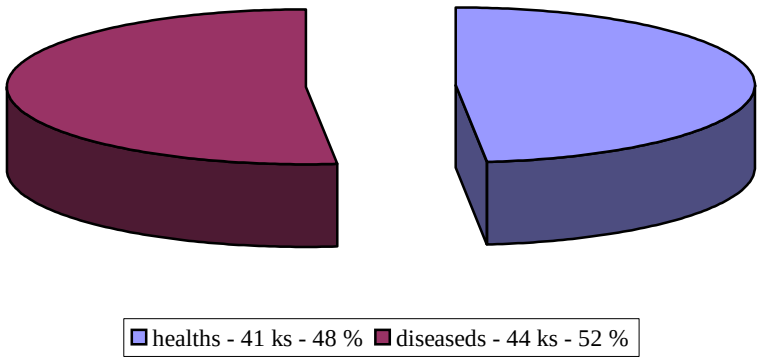
Graph 2 : - farm A - control group - 34 ks



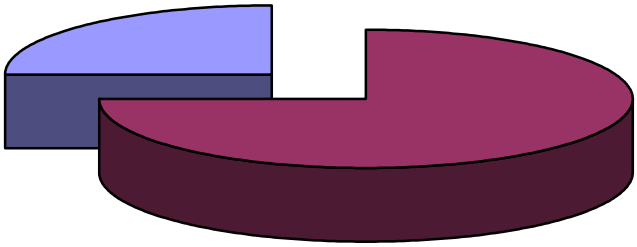
Graph 3 : - farm A - experimental group - 19 ks



Graph 4 : - farm B - count of cattles - 85 ks



Graph 5 : - farm B - control group - 28 ks



Graph 6 :- farm B - experimental group - 16 ks