

HOMOEOPATHIC MASTITIS CONTROL: A STUDY ON THE UPTAKE AND EFFICACY OF PRODUCTS IN THE REPUBLIC OF IRELAND

JOHN EGAN, Central Veterinary Research Laboratory, Abbotstown, Castleknock, Dublin 15

SUMMARY

Over the past ten years there has been an increasing number of non-antibiotic treatments for mastitis, to treat clinical cases or to reduce somatic cell count available on the Irish market. More than 20% of farmers report having used homeopathic remedies for mastitis and almost half (43%) of the users claimed they had worked.

A number of Irish and international trials are reviewed and the results reported. No significant benefits were found from treating subclinical mastitis with homeopathic herbal products in three trials. Use of a homeopathic nosode to prevent mastitis, in a double blind trial, showed no significant difference between the number of new cases of clinical mastitis or the frequency of isolation of individual pathogens. The Irish trials indicate no benefits from treating animals with some of the commercially produced remedies on the market.

INTRODUCTION

Bulk milk somatic cell counts (SCC) in Irish dairy herds have fallen considerably over the past eight years. Dairy co-operatives have encouraged a greater uptake of mastitis control measures on farms and applied severe penalties on milk supplied with high SCC to ensure milk complies with the quality requirements of national and EU legislation. Individual monitoring of milk SCC levels in cows has allowed farmers to identify chronically infected animals for treatment or culling. While antibiotics have always played a central role in mastitis control on farms, more dairy farmers have become aware of their limited efficacy in controlling and preventing subclinical infections. Meaney (1) drew attention to the limited efficacy of intrammary antibiotic therapy and more recent reviews (2,3) have reappraised the role and efficacy of antibiotics in mastitis treatment.

Over the past ten years there has been an increasing number of non-antibiotic alternative remedies on the Irish market for the treatment of animal diseases. The growth in homeopathic remedies in veterinary medicine has to some extent paralleled that in human medicine. Mastitis would seem to be the animal disease most frequently targeted with many products available and some with specific claims for efficacy in reducing milk SCC. While manufacturers of these products may be able to present some case histories indicating the efficacy of their products there are no scientifically based independent studies to validate the claims made for products.

This paper reviews the results of a number of such studies undertaken on products in the Republic of Ireland

UPTAKE OF HOMOEOPATHY ON FARMS

A questionnaire survey detailing the uptake of homoeopathic mastitis treatments in the Republic of Ireland has recently been published (4). Questionnaires were completed on a total of 234 herds. The herds surveyed in the study were above the national average for herd size and were considered to be among the more progressive of farming groups in terms of farm management practices. Questionnaires were completed in the presence of the farmer by either veterinary surgeons or milk recording personnel visiting farms in the course of their work.

A total of 52 (22.2%) of the 234 farmers surveyed, responded that they had used homoeopathic mastitis control remedies in their herds. Only 34 of the farmers using homoeopathy named the product used in their herds. In 26 cases the products used were marketed as homoeopathic products by their manufacturers. In the other eight cases the manufacturer's classification was not known by the author. Although all the products were classified as homoeopathic by the farmers themselves, the products might have been more aptly described as alternative medicines. The methods of administration of products by the farmers is shown in Table 1. Oral administration was the most common route either by addition to the drinking water or directly through dosing.

Table 1. Route of administration of homoeopathic remedies in the herds surveyed

Route of administration	Number (%) of herds
Adding to drinking water	26 (50.0)
Parenterally	14 (27.0)
Oral dosing	3 (5.8)
Intra vaginally	3 (5.8)
Adding to feed	2 (3.8)
Other	2 (3.8)
Not stated	2 (3.8)

Mastitis was regarded as a problem by 19.2% of the respondents in herds using homoeopathy compared to 25.6% of respondents in other herds. The main reason given by the farmers for using homoeopathy was to reduce milk SCC (83%). Fourteen herds were using homoeopathy at the time they were surveyed and seven of these herds had been using homoeopathy for at least one year. When questioned if homoeopathy had worked in the herd, 21 (43.8%) of the 48 respondents replied that it had worked. Almost 83% of farmers surveyed had heard of homoeopathic mastitis control. Salesmen, other farmers and the farming press were the main sources of information on homoeopathy with only 7.3% of respondents stating veterinary surgeons as the source of information. The reasons given by 123 farmers for not using homoeopathy were; unfavourable reports (53.7%), too expensive (40%) and insufficient information (26.7%).

EFFICACY OF HOMOEOPATHIC HERBAL PRODUCTS

Three commercial herbal homoeopathic preparations marketed in Ireland have been evaluated over an eight year period under experimental conditions at the Central Veterinary Research Laboratory (CVRL), Abbotstown. All the preparations were recommended for use in herds to control mastitis and reduce high SCC. Two of the products were for oral administration and one for subcutaneous administration. A homoeopathic udder cream was supplied and recommended for use with one of the products (5).

The cows used in the experiments were generally in mid to late lactation and were selected from the dairy herd at the research station. A mastitis control programme operated in the herd and quarter milk samples were routinely tested for bacteria and milk SCC. The cows were selected on the basis that quarter milk samples collected prior to treatment had indicated that they were infected subclinically with *Staphylococcus aureus* or coagulase negative staphylococcal mastitis in at least one quarter. Sample collection and mastitis definitions were as outlined by the International Dairy Federation (6).

The results of the treatment are shown in Table 2. None of the preparations showed any significant efficacy in reducing infectious or non-specific subclinical mastitis.

Similar trials on two products have been conducted at the Teagasc Research Centre, Moorepark (7). Product A in their trial was similar to that used above at the CVRL, Abbotstown. In the first trial (7) using product A, 25 cows affected by subclinical mastitis were treated with an oral spray for 20 days and an homoeopathic cream applied to the udder after each milking for five days in 11 of the cows. Quarter milk samples were monitored for 22 days after treatment was completed. No significant benefits from treatment were observed (Table 2). In a second trial (7) using the same remedy modified to a higher potency (product D), 19 subclinically infected cows were treated and udder quarters monitored for 53 days after the treatment was completed. No significant benefits from treatment were observed (Table 2).

EFFICACY OF HOMOEOPATHIC NOSODES

In a joint study between the research centres at Abbotstown and Moorepark the efficacy of a homoeopathic nosode was evaluated in three herds, one each attached to the research stations at Abbotstown and Moorepark and one commercial herd (J. Egan and W.J. Meaney, unpublished). A total of 188 lactating cows were assigned at random, in a double blind trial, into two groups and treated with either a nosode or placebo for a period of 12 months. The homoeopathic preparation used in this experiment was formulated at 30c potency and contained a combined nosode for *Streptococcus agalactiae*, *Streptococcus dysgalactiae*, *Streptococcus uberis*, *S. aureus* and *Escherichia coli*. A placebo was also used.

Table 2. Results of efficacy trials on four commercial homoeopathic preparations in the treatment of subclinical mastitis in cows

Product	Ref.	No. of cows treated	Duration of treatment (days)	Route of administration	No. of quarters affected by infections or non-specific mastitis	
					Pre-treatment	Post-treatment
A	5	15	17	Orally	19	23
A	7	25	20	Orally	26	26
B	J. Egan	8	12	Subcutaneous	19	18
C	J. Egan	8	5	Orally	21	21
D	7	19	20	Drinking water	19	16

Table 3. Clinical mastitis in animals treated with a homoeopathic nosode or a placebo (J. Egan and W.J. Meaney, unpublished)

	Treatment	
	Homoeopathic nosode	Placebo
No. of cows on treatment	94	94
No. of cows which developed clinical mastitis (%)	37 (39.4)	33 (35.1)
No. of quarters infections	47	57
No. of cases of acute clinical mastitis	31	36

A total of 148 cases of clinical mastitis cases developed in 70 (37%) of the cows on experiment (Table 3). One hundred and four (70.3%) were new infections and the remaining 44 (29.7%) were recurrent episodes which occurred in a number of cows. Sixty-seven (45.3%) of all the infections were considered as acute. All but 12 (17.9%) of these cases occurred during the lactating period. There were no significant differences between the two treatments in the number of new cases of clinical mastitis either within herds or in all herds collectively. There was also no significant difference in the frequency of isolation of individual pathogens from animals on each treatment.

In a separate study Meaney (7) evaluated the efficacy of a nosode formulated for *Str. agalactiae*, *Str. dysgalactiae*, *Str. uberis*, *S. aureus*, *Staphylococcus albus*, *Staphylococcus epidermidis*, *Arcanobacterium pyogenes*, *E. coli* and *Mycobacterium bovis*. One group of 13 animals was treated with the nosode and a further group of 13 cows acted as an untreated control. The nosode was administered using a vulva spray technique and the experiment was conducted over an eight-month period. It was concluded that the nosode had no effect in reducing the mastitis incidence or milk SCC.

DISCUSSION

Homoeopathic mastitis control remedies have been used on about 22% of the more progressive Irish farms with the primary objective to reduce milk SCC. Over 43% of herdowners using homoeopathy claimed that it had worked. While most preparations were administered in drinking water or feed some were administered by subcutaneous injection or into the vulva. As most of the products and information on homoeopathy came from non veterinary sources, it would be interesting to have an assessment from the herds' veterinary practitioners on the usage and efficacy of these products in the animals. In an assessment of 12 herds using homoeopathy in the UK (8), it was found that there was little evidence to indicate that the homoeopathic preparation used had any effect in controlling the incidence of mastitis and the authors concluded that the perceived success of the product by farmers derived in part from their attitude and commitment to homoeopathy. It was also found that in a limited number of cases the farmers using homoeopathic mastitis control had stopped using one of the standard mastitis control recommendations.

The controlled trials conducted to date in Ireland have show no benefits from homoeopathic mastitis products. Most of the products tested have been commercially produced and sold directly to farmers. While manufacturers of these products can usually supply individual case history data to substantiate their claims for efficacy, full data on all other factors that may be affecting mastitis incidence in the herds is generally not provided to make a realistic assessment of the claims. The financial outlay for farmers using homoeopathic medicines in some herds has been considerable and it could be realistically assumed that other proven control measures are rigorously applied in these herds. As the recommendations for using these products are generally not as clearly defined as conventional therapies it is important to discuss with manufacturers, protocols for evaluation prior to any trials on efficacy. To date there is little evidence of the "homoeopathic" industry funding independent studies of these products and as there are generally no adverse effects from their use they are unlikely to become a major issue for regulatory authorities.

Distinct from the large scale homoeopathic treatments are the selective homoeopathic remedies provided on an individual animal or herd basis by veterinary homoeopaths. While many of these treatments remain scientifically unproven there is no doubt that there is a high level of individual animal care provided and the current negative results should not be extrapolated to such homoeopathic treatments.

The debate on the efficacy of homoeopathic medicines transcends both veterinary and human medicine. Central to the debate is the role of the placebo and the extent of the self cure phenomenon. In mastitis it is clear that a significant number of infections will be eliminated without any treatment or with minimal intervention such as quarter stripping. Ideally, if it was ethically and practically feasible, it would be desirable to structure trials on the efficacy of both conventional and alternative medicines to allow for quantification of this factor. The self cure rate for *S. aureus* mastitis is approximately 25% within the three week period after treatment, giving a true elimination rate for antibiotic treatment of about 17% (9). In the present trials some of the homoeopathic products were evaluated in chronic cases of mastitis where there is little doubt that the response rate from some conventional therapies would have been similar.

It is sometimes difficult to assess adequately conclusions drawn from some experiments due to poor experimental design and/or incomplete data. Day (10) claimed to find some benefits from use of a nosode for unspecified periods in three herds while Sonnenwald (11) found homoeopathic preparations were more successful than antibiotics in treating mastitis cases caused by Gram-negative bacteria but less effective than antibiotics in treating mastitis cases caused by Gram-positive bacteria. In a field study of 100 cases of acute clinical mastitis (12), it was found that homoeopathic treatments gave similar cure rates to antibiotics. The authors also reported that homoeopathic treatments were more successful in mastitis cases caused by Gram-negative pathogens whereas antibiotic treatments were more effective in the treatment of mastitis caused by Gram-positive bacteria. Dorenkamp (13), in a study of homoeopathic treatment on 580 subclinical cases of mastitis, achieved a cure rate of 97.9% after 4 days with only 28 (4.8%) showing relapses after 8 weeks. The same author reported that homoeopathic treatment of 218 clinical infections achieved 100% cure rate after 3 days with only 5 (2.5%) showing relapses after 8 weeks.

In a review of the use of homoeopathic treatments Hamann (14) concluded that scientific information on the effectiveness of homoeopathic remedies for the treatment of bovine mastitis was too limited to justify a definite conclusion. The results of the trials to date in Ireland indicate that there are no benefits from treating animals with some of the commercially produced remedies on the market. The work highlights the need for further investigations of similar preparations.

REFERENCES

1. MEANEY W J (1981) The role of antibiotics in mastitis control. In: Technical Bulletin No. 2-81, Teagasc (An Foras Taluntais), Dublin
2. CRAVEN N (1987) *British Veterinary Journal* 143 410-422
3. SANDHOLM M, L KAARTINEN & M PYORALA (1990) *Journal of Veterinary Pharmacology and Therapeutics* 13 248-260
4. EGAN J (1998) *Irish Veterinary Journal* 51 141-143
5. EGAN J (1995) *Veterinary Record* 137 48
6. INTERNATIONAL DAIRY FEDERATION (1981) International Dairy Federation Document 132, Brussels
7. MEANEY W J (1993) In: *Mastitis and Milk Quality: A Handbook for Veterinary Practitioners.* (Editor W.J. Meaney). Teagasc Research Centre, Moorepark, Fermoy, Ireland, 59-71
8. STOPES C & L WOODWARD (1990) *IFOAM Bulletin for Organic Agriculture* 6-10.
9. DODD F H (1987) The role of therapy in mastitis control. Proceedings of International Mastitis Symposium, Macdonald College, Quebec, Canada, 161-175
10. DAY C E I (1986) *Journal for Veterinary Homeopathy* 1 15-19
11. SONNENWALD B M (1986) Abstract 1438 *Dairy Science Abstracts* 50 158
12. VON MERCK C C , B SONNENWALD & H ROLLWAGE (1989) *Berliner und Münchener Tierärztliche Wochenschrift* 102 272-274
13. DORENKAMP B (1992) *Biologische Tiermedizin* 9 76-86
14. HAMANN J (1993) *International Dairy Federation Newsletter* 18 10-12