



J. Dairy Sci. 100:1–11  
<https://doi.org/10.3168/jds.2016-11805>  
 © American Dairy Science Association®, 2017.

## Randomized, blinded, controlled clinical trial shows no benefit of homeopathic mastitis treatment in dairy cows

Fanny Ebert,\* Rudolf Staufenbiel,\* Julia Simons,\* and Laura Pieper\*†<sup>1</sup>

\*Ruminant and Swine Clinic, and

†Institute for Veterinary Epidemiology and Biostatistics, Free University of Berlin, 14163 Berlin, Germany

### ABSTRACT

Mastitis is one of the most common diseases in dairy production, and homeopathic remedies have been used increasingly in recent years to treat it. Clinical trials evaluating homeopathy have often been criticized for their inadequate scientific approach. The objective of this triple-blind, randomized controlled trial was to assess the efficacy of homeopathic treatment in bovine clinical mastitis. The study was conducted on a conventionally managed dairy farm between June 2013 and May 2014. Dairy cows with acute mastitis were randomly allocated to homeopathy ( $n = 70$ ) or placebo ( $n = 92$ ), for a total of 162 animals. The homeopathic treatment was selected based on clinical symptoms but most commonly consisted of a combination of nosodes with *Streptococcinum*, *Staphylococcinum*, *Pyrogenium*, and *Escherichia coli* at a potency of 200c. Treatment was administered to cows in the homeopathy group at least once per day for an average of 5 d. The cows in the placebo group were treated similarly, using a placebo preparation instead (lactose globules without active ingredients). If necessary, we also used allopathic drugs (e.g., antibiotics, udder creams, and anti-inflammatory drugs) in both groups. We recorded data relating to the clinical signs of mastitis, treatment, time to recovery, milk yield, somatic cell count at first milk recording after mastitis, and culling. We observed cows for up to 200 d after clinical recovery. Base-level data did not differ between the homeopathy and placebo groups. Mastitis lasted for an average of 6 d in both groups. We observed no significant differences in time to recovery, somatic cell count, risk of clinical cure within 14 d after disease occurrence, mastitis recurrence risk, or culling risk. The results indicated no additional effect of homeopathic treatment compared with placebo. The

advantages or disadvantages of homeopathy should be carefully assessed for individual farms.

**Key words:** homeopathy, dairy cow, mastitis, clinical trial, placebo

### INTRODUCTION

Mastitis is one of the most important diseases in the dairy industry (Schepers and Dijkhuizen, 1991; Olde Riekerink et al., 2008). It leads to significant economic losses caused by reductions in milk yield (Rajala-Schultz et al., 1999; Zoche-Golob and Spilke, 2013), poor milk quality (Houben et al., 1993; Hortet and Seegers, 1998), increased work load (Kossaibati and Esslemont, 1997), early culling (Rajala-Schultz and Grohn, 1999), and high treatment costs (Lührmann, 2007).

Once an animal affected by mastitis has been identified, eliminating the disease is important. Depending on the etiologic agent, self-cure rates range from low (for *Staphylococcus aureus*; Grommers et al., 1985) to very high (for coliform bacteria; Craven, 1987). In a retrospective study with milk culture results from 9,007 cases of subclinical mastitis, bacterial cure rates were significantly lower (68%) in untreated cows than in cows that received antibiotic treatment (75%). However, differences between self-cure and antibiotic treatments were found only for streptococci (including *Streptococcus agalactiae*) and CNS (Wilson et al., 1999). In a small study on clinical mastitis, clinical and microbiological self-cure risks were 40 and 40% for streptococci and 67 and 78% for coliform bacteria, respectively (Roberson et al., 2004). Nevertheless, self-cure is often associated with a longer duration of infection, lower milk yield, and the potential for pathological changes in the mammary gland (Bramley and Dodd, 1984). Antibiotic therapy should be chosen based on the mastitis pathogen and the type of mastitis (Ehinger and Kietzmann, 1998; Linder et al., 2013). In acute and peracute cases of mastitis, immediate antibiotic treatment may be warranted (Craven, 1987). Antibiotic treatment can also be combined with increased milking frequency (Roberson et al., 2004), anti-inflammatory drugs (Fitzpatrick et

Received August 1, 2016.

Accepted January 27, 2017.

<sup>1</sup>Corresponding author: [laura.pieper@fu-berlin.de](mailto:laura.pieper@fu-berlin.de)

al., 2013), fluid substitution (Roberson, 2012), vaccines (Hogan et al., 1992), cytokines (Erskine et al., 1998), or alternative treatment methods (Busato et al., 2000). If treatment is ineffective in avoiding further losses, the affected animal is often culled to prevent further suffering and the spread of pathogens (Bramley and Dodd, 1984).

In recent decades, alternative treatment methods (Vaarst et al., 2006; Langford et al., 2009), including homeopathy (Hovi and Roderick, 2000), have been used increasingly for mastitis treatment. Producers see advantages in the use of homeopathic remedies to avoid withdrawal periods (Boldyreva, 2003), residues (Enbergs, 1998), or antibiotic resistance (Smith, 2002). Homeopathy was developed by the German physician Samuel Hahnemann (Hahnemann, 1810) and is commonly referred to as complementary or alternative medicine (Institute of Medicine of the National Academies, 2005). Evidence-based, Western medicine is often called allopathic medicine. Samuel Hahnemann's philosophy of homeopathy has 3 principles: (1) "like cures like" (*similia similibus curentur*); (2) testing the effect of a homeopathic remedy in healthy individuals ("homeopathic prove"); and (3) the use of potentized remedies. For potentization, the homeopathic remedy is activated via special dilution and shaking (succussion) of the ground substance (plant, mineral, or animal in origin) with a carrier substance (e.g., lactose or ethanol; Vickers and Zollman, 1999; Schmidt, 2008). The more often potentization is performed, the higher the potency of the homeopathic remedy and the lower the concentration of the original substance. Different potency scales are available to describe potentization. Using 1 part ground substance in 10 parts carrier substance represents a potentization of D1; using 1 part ground substance in 100 parts carrier substance represents a potentization of C1. Furthermore, taking 1 part D1 substance and mixing it with 10 parts carrier substance will yield a potentization of D2 (Rijnberk and Ramey, 2007).

In the European Union, homeopathic remedies used in food-producing animals may be registered under simplified conditions if the concentration of the active ingredient does not exceed 1:10,000 (potency of D4 or C2, or higher), the route of administration is described in the European Pharmacopoeia, and the active substance is listed in the Annex of Commission Regulation (EU) No. 37/2010. Veterinary homeopathic remedies with active substances that are not listed that have potencies lower than D4 or C2 (concentrations higher than 1:10,000) require normal approvals (Löscher et al., 2006).

Homeopathic treatment is also associated with some disadvantages. Due to their simplified registration,

most homeopathic formulations are marketed without pharmacological, toxicological, or clinical assessment (Löscher and Richter, 2010). Moreover, homeopathy might come with direct (due to the use of toxic substances) and indirect (due to the withholding of effective, conventional treatment) side effects (Posadzki et al., 2012). Although little evidence is available for the benefits of homeopathic treatments, they are preferred over allopathic therapies in organic dairy herds. The EU (EG) organic regulation Nr. 889/2008 states that organic farms should prefer homeopathic and phytotherapeutic treatments over allopathic drugs if their therapeutic efficacy has been proven for the species and disease in question (European Commission, 2008).

Still, scientific evidence on the effectiveness of homeopathy is lacking (Albrecht, 2013). Recent studies in veterinary medicine focused on the difference of the cure risk between the therapy and control groups. While some studies found no effects of homeopathic therapy for mastitis (Hektoen et al., 2004; Werner et al., 2010), other studies showed negative results in the homeopathic group (Garbe, 2003; Varshney and Naresh, 2005), and still others showed positive results (Day, 1986; Merck et al., 1989). A meta-analysis found no significant differences between homeopathic and conventional therapies in veterinary medicine (Mathie and Clausen, 2015). As well, although many of the studies detected no positive effect of homeopathic mastitis therapy in dairy cows, the authors' conclusions were often positive (Garbe, 2003; Varshney and Naresh, 2005; Werner et al., 2010). The authors of the meta-analysis suggested that some authors of randomized controlled clinical trials in veterinary homeopathy overemphasized the positive outcomes (Mathie and Clausen, 2015). Furthermore, many of the studies lacked a proper scientific approach. Only 28% (84/302) studies using homeopathy in veterinary medicine were randomized and placebo-controlled (Clausen et al., 2013). More evidence-based research is needed in complementary veterinary medicine (Lewith et al., 2000; Mathie and Clausen, 2014).

The objective of this triple-blind, randomized controlled trial was to assess the specific treatment effects of homeopathic mastitis treatment in dairy cows. We expected to find a faster clinical cure, higher clinical cure risk, lower SCC after mastitis cure, and lower mastitis recurrence risk in the homeopathic group compared with the placebo group.

## MATERIALS AND METHODS

### General Setting

The study was conducted between June 2013 and December 2014 on a conventional dairy farm in north-

Download English Version:

<https://daneshyari.com/en/article/5542276>

Download Persian Version:

<https://daneshyari.com/article/5542276>

[Daneshyari.com](https://daneshyari.com)