

# Effects of bovine casein hydrolysate as a dry cow therapy on prevention and cure of bovine intramammary infection, milk production and somatic cell count in the subsequent lactation

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## Introduction

The objectives were to investigate the efficacy of bovine casein hydrolysate (bCNH) as a dry cow therapy on: 1) preventing new intramammary infection (IMI) postpartum of all bacteria and coagulase-negative staphylococci (CNS); 2) curing existing subclinical infections, mainly of CNS; and 3) affecting on milk yield, composition and somatic cell count (SCC) during the post-calving lactation.

## Materials and methods

The trial was conducted as a randomized, blinded controlled experiment. Israeli Holstein dairy cows ( $n = 170$ ) in first or higher lactations were recruited from 4 large commercial dairy herds. Cows were enrolled following clinical examination and bacteriological sampling of each quarter which was the experimental unit. Random allocation was implemented at the cow level. All quarters of 100 cows were treated with 1 dose of bCNH (20 ml sterile solution) and those of 70 control cows were treated with saline solution. Clinical assessment of each cow's general appearance, teat-end leakage, and teat morphology was performed for 0, 1, 2, 3, 7 and 14 d after treatment, together with follow-up clinical observation and clinical examination of udder quarters. Quarter aseptic milk samples for bacteriological culture were obtained 48 h pretreatment, at time of treatment, 3 and 5 d post-calving.

## Results

The proportion of quarters without IMI post-calving was 59.2.5% vs. 45.6% for bCNH and control groups, respectively ( $P < 0.0006$ ). The odds of preventing IMI in cows treated with bCNH at dry-off were 2.01 times higher (95% confidence interval [CI]: 1.16 to 3.50,  $P < 0.013$ ) than in cows treated with saline.

Prevention was mostly of CNS as the other pathogens were too few to allow evaluation. The odds of preventing CNS in cows treated with bCNH at dry-off were 2.20 times higher (95% CI: 1.58 to 3.07,  $P < 0.020$ ) than in control cows. The odds of curing IMI caused by CNS in cows treated with bCNH at dry-off were 4.80 times higher (95% CI: 0.99 to 13.38,  $P < 0.09$ ) than in saline-treated cows. Log<sub>10</sub>SCC, adjusted to that of the previous lactation, was lower in the bCNH group compared to controls for 305 d post-calving ( $P < 0.008$ ). The least square means of log<sub>10</sub>SCC estimates of the bCNH group were lower in 6 of the 10 months of lactation ( $P < 0.05$ ). The average milk yield per day for 305 d, adjusted to average daily milk yield of previous lactation, was higher by 2.1 kg in the bCNH group compared to controls (95% CI: 1.21 to 3.20,  $P < 0.007$ ). Clinical assessment of udders and cows post-treatment showed no negative effects of bCNH. Incidence of stillbirth, clinical mastitis, retained placenta, endometritis (5 to 12 d post-calving), ketosis, abortions and reproduction did not differ between the 2 groups.

## Significance

Results suggest that a single intramammary administration of bCNH at dry-off effectively increases milk yield and lowers SCC, prevents new IMI during the dry period, and may be a beneficial alternative for curing existing IMI at dry-off.

