

Therapeutic Effects of Bee Venom Complex Ointment on Bovine Subclinical Mastitis

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Introduction: Therapeutic effects of various agents (cytokines, ginseng, lactoferrin, chitosan, ozone) having immune modulation ability have vastly been studied against bovine mastitis. However, mastitis is still offer biggest challenge for both veterinarians and dairy farmers. Bee venom (BV) is known to have anti-arthritic, anti-inflammatory, anti-bacterial, anti-oxidant, anti-nocieptive and anti-tumor effects in animals and humans. However, the scientific literature is totally devoid of in explaining any therapeutic response of BV against bovine mastitis. This study evaluated the clinical effectiveness of BV with antibiotic (BVA) against subclinical mastitis in dairy cows.

Materials and methods: BV with antibiotic (BVA) was infused through intramammary route. The total of 0.2mg BV and 100mg ampicillin sodium (Amoxicillin?, Bayer, Korea) were dissolved in 20 ml of 0.9% saline and passed by sterile filters (0.2 μ m, millipore). Twenty two quarters of 12 cows having high SCC (over 2,000 \times 10³ cells/ml) were infused with 20 ml BVA for 3 consecutive days. SCC of each quarter infused with BVA was monitored for 6 consecutive days after the treatment. Quarter milk samples (QMS) were collected from treated quarters. SCC analyses of QMS were conducted by somatic cell counter on the day of collection. BSA and Lf were determined using ELISA kit. Total bacterial count (TBC) was estimated by plate count method and mastitis pathogens were identified using automated microorganisms system (Vitek 32, BioMeriux, USA). Three SCC evaluation grades were observed in all experimental cows including excellent (SCC reduced less than 1,000 \times 10³ cells/ml), good (over a half reduction on the base of SCC) and poor (SCC was either increased or remained at the same levels).

Results: Recovery rates of subclinical mastitis after BVA infusion were noted 22.7% excellent, 45.5% good and 31.8% poor. Lf concentration in excellent and good recovery group slightly decreased but in poor group was not changed. BSA concentration in excellent, good and poor recovery groups did not change much. TBC in excellent recovery group after BVA infusion significantly decreased (P<0.05), in good recovery group slightly decreased but in poor recovery group was not changed.

Clinical relevance: BV in combination with ampicillin can effectively be used as intramammary infusion to cure bovine subclinical mastitis.

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