Bio – Surveillance and Biosecurity: A Promising action to stop the incidence of Digital Dermatitis in dairy Cows

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Bovine Digital Dermatitis (BDD) has been found a reputation of being cosmopolitan, emerging with apparent infectious nature. It negatively affects animal welfare and production. Body of evidences indicates that BDD is a multifactorial, involving environmental management and microbial factors and currently is the Problematic infectious skin disease frequently in dairy cattle with lameness various solution have come in and out of fashion without any justification and still had a lot of question marks regarding origin / source. Skin of digital region mostly at the planter and dorsal aspects of the interdigital space is a target zone for lesion development. It was stated that any breach in the normal skin structure from direct abrasion or chemical contact with the skin, will allow micro - organisms to invade the underlying tissues and provoke an associated inflammatory response where the local body defense mechanisms have limited access to such a lesion, the infection may not be contained and either the integrity of that tissue or the health of the whole body can be compromised. Today it was cleared that BDD is patently a disease with very significant bacterial involvement , group of Treponema and plenty opportunistic Invaders of tissues was blamed for such infection .Treponema medium, T. vencentti – link , T. denticola / T. Putidum – link all are three polygroups of Treponema consistently identified together in typical BDD foot lesion . it is still unclear whether the Treponema’s are merely secondary invaders or have a primary role in lesion development . Since the first reported outbreak of BDD from PO valley, Millan. Italy on 1974, the clinical picture of BDD lesions and the panorama of disease changed significantly due to aggressive medicament and not correct way of treatment. The 5 lesion stages by using the so – called “M-Stage” classification system making accurate assessment of BDD lesion transmissions for control treatment Policy to be taken at Prompt action .M., early, small circumscribed red to gray epithelial defects less than 2cm in diameter that may spontaneously resolve or precede into acute stages of DD(M2) .In addition , M1 stage can appear between acute episodes of lesion or within the margins of a chronic M4 lesion as an intermediate stage . M2 acute , active ulcerative (bright red ) or granulomatous ( Red – gray)digital skin alteration ,> 2cm in diameter , commonly found along the coronary band in addition to around the dew claws , in wall cracks and occasionally as a sole defect . M3 , healing stage within 1to 2 days after topical therapy , where the acute DD lesion has covered itself with a firm
Recent evidences put stress on the invasion of Treponema’s to the necrotic tissues, and non-healing hoof lesion such as toe necrosis. These should be considered as reservoirs of infection. Chronic lesions (M4) could be acted as the long term reservoirs of pathogens and the precursors of active lesion. Increased chronic lesion become a problem under the impact of risk factors such as bad hygiene. Several alternative niches for BDD treponemes have been claimed. It may survive in environment slurry and on the skin surface at least for short periods of time. This might suggest that direct skin contact or short term persistence in slurry could be the rout for DD Treponema transmission, but controversy exist. On potential means of controlling infection is this disruption of transmission, however, the infection reservoirs and transmission routes of BDD have yet to be elucidate. To this end organized bio- surveillance and treatment plan also showed that individual cow factor play an important role in the development of the visible lesions of Digital Dermatitis and that this may be independent of serological response recently advised. The two components of biosecurity measures namely, bio- exclusion, relates to preventive measures (risk reduction strategies) designed to avoid the introduction of pathogenic infections (Hazards) and bio- containment relates to measures to limit within – farm transmission of infectious hazards and onward spread to other farms. The implementation of these plans showed how they act properly to minimize the risk of acquiring more sever forms BDD in endemically infected herds. Without asking for anything in return, as recently stated, using the Mastitis...
Analogy, Digital Dermatitis can be considered as “Mastitis of Foot” then dry period infections are of importance and hence dry cows, pre-calving heifers, young heifers and premature calves needed to be monitored and acted on. Last not least, intensive intervention programs based on active long-term DD surveillance, mitigation of risk factors and prompt treatment are expected to increase overall animal well being and farm profitability by minimizing the effect of DD especially during the first lactation. On the final words as distinguished professor Nigel B. Cook stated in his interesting article recently published in the AABP Proceedings book, Vol.48,2015, page 88, given the UBIQUITY of the condition, it is likely that BDD deserves the title of being the most infectious disease present on modern dairy operation.

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