A study on serum bone specific alkaline phosphatase activity alterations in dairy cows with white line disease

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White line disease is a major cause of lameness, particularly when cattle are housed and fed concentrates. The incidence in multiparous cows can be as high as 35%. The disease is characterized by the separation of the fibrous junction between the sole and wall on the abaxial border of the sole at the heelsole junction. The corium becomes infected through this opening and tracks of infection may localize as an abscess or may penetrate deeper to form a retroarticular abscess. In this study we have investigated the possible relationship between white line disease and serum bone specific alkaline phosphatase activity in dairy cows. This study was performed in an industrial dairy farm in Shahrekord, Iran. Animals were housed in a loose-stall system. White line disease diagnosis was carried out by a veterinary practitioner. Venous blood samples were collected from tail vein in evacuated tubes without any additives. Blood samples also were taken from the same number of healthy cows. Samples were centrifuged at 1800 G for 10 minutes. The serum samples were stored at -70°C until analysis, which was performed within 2 weeks of sample collection. Serum BALP activity was quantified by heat inactivation method. All values were presented as mean ± SD. Data were analyzed using a Student's t-test. There were no significant difference in serum BALP activities in cows with white line disease and normal cows, 32.33±6.83 and 26.02±4.83 respectively, p>0.05. Serum BALP is a reliable biomarker for monitoring bone tissue metabolism. Several studies have reported increased serum BALP during the skeletal disorders in animals and human. However there is not so much information about behavior of this enzyme in cattle. Although white line disease cause an increase in serum BALP activity, it was not significant statically when compared with healthy cows. This finding is not unexpected when Consider to the less penetrative nature of white line disease. It seems in cows suffering from white line disease lameness and lack of natural distribution of weight may stimulate bone tissue osteoblasts to synthesis relatively more enzyme.


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Lameness in dairy cows is second only to mastitis in terms of its detrimental effect on herd productivity. As well as productivity losses lameness severely compromises the welfare of affected animals and is probably the single most common cause of distress in dairy cattle. The annual incidence ranges between 4 and 55. Cases per 100 cows per year depending on farm location and year of study. Incidence rate is appropriate when the speed of development of new cases in a population needs to be known. We conducted a historical cohort study to investigate the incidence rate of lameness in dairy herds in Tehran province. 7067 first- and second-parity Holstein dairy cows that calved from March 21 2007 to March, 20 2008 and were followed until next calving. The annual incidence rate of lameness at this study was 20.5% (95% CI: 19.5- 21.44). Herd size was an important factor in increasing – incidence rate (P<0.05). The incidence rate of lameness in large herds was significantly higher than in small herds. The results presented herein demonstrated that the incidence rate of lameness in this area is high.

Effect of different housing systems on hock lesions and evaluation the effect of parity and milk production on these lesions

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Lameness and hock scores indicate a herd's comfort level, as lesions on the hock are result of bedding quality including type of bedding and other resting area specifications. This current study was done to evaluate the effect of housing systems and some other management criteria on bovine hock scores. The study was conducted in a dairy farm with 2900 milking cows that kept in loose stall (LS), free stall with yard (FSY) and free stall without yard (FS) systems. Eighty cows in LS, 293 in FSY and 203 in FS housing systems were selected. Lateral hock (LH) and tuber calcis (TC)

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lesions scored in left rear limb of the cows based on a three point scale as one considered as normal and three as severely injured. Scoring was done by two independent observers and the average of values between two observers was used for further assessments. Observations between two observers were significantly different in LH scores one and two (Chi-Square, P<0.05). However the agreements recorded as 92.67%, 33.58 and 33.3 % in LH and 88.5%, 73.2% and 21.7 % in TC scores between two observers in scores one to three respectively. A significant difference recorded in TC scores (P<0.05) (1.23 ± 0.38, 1.46 ± 0.5 and 1.78 ± 0.52 in LS, FSY and FS groups respectively). Average of TC and LT scores in the first parity (LT: 1.14 ± 0.35, TC: 1.42 ± 0.52) was significantly lower than higher parities (LT: 1.22 ± 0.35, TC: 1.60 ± 0.53) (P<0.05). No significant difference recorded in different days in milk. Cows with average production of 25 liters and higher/day showed lower TC scores (1.51 ± 0.53) than cows with less than 25 ltr/day production (1.68 ± 0.52) (P<0.05). Science free stall design are the same in both free stall systems, higher score in FS system maybe a result of longer resting time in their stalls.

Application of surgical shoeing in horses with vertical hoof crack (12 cases)

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Vertical hoof cracks happen in the wall of the hoof so that they begin at the coronet and running parallel to the horn tubules forward to the ground surface. They also start from ground surface to upward. These cracks occur most common in racehorses. Excess drying of the hoof, trauma, and conformational faults are the most factors likely cause these separations. A crack in the horn emanating from the coronet is most obvious sign. If infection is established, there may be a bloody or purulent discharge and signs of inflammation and lameness. Twelve adult cross breed horses suffering hoof crack were evaluated. Some of them have deep vertical crack in quarter area as a grass crack and others have cracks happened in lateral side of toe and middle of it as a sand crack. Case no. 1, 3 and 4 have grade 4 of lameness according to AAEP in the lame limb. In case no. 2 and 7 it was appeared lameness with grade 3, resulted from inflammation of live underlay tissue. Surgical horseshoeing was carried on by a farrier under supervision a veterinarian surgeon in each case. In these cases, hot shoeing was applied for making some eggs, straight or heart bar shoe. Hoof packing and mesh, screw and plate or technovite were applied to decrease of the crack layers movement. Results of repair were acceptable in some cases after 3 and some after 6 months. In quarter cracks, the lameness was treated and the hoof wall was growing close to fully. In toe cracks, fully supported of the hoof wall was occurred and the tenderness of the soft tissue was decreased. Therapy oftheses cracks involves surgery and corrective shoeing to change the distribution of weight on the hoof. Growth of new horn may be encouraged by application of a counter irritant (eg, tincture of iodine) to the coronet over the crack. If the crack has become infected, apply an antiseptic pack wall. It is worth to mention that hot shoeing and shoe making in the filed depend on the hoof problems could be effective in treatment of the hoof cracks.

"Coring" fin alternative technique for the treatment of deep digital sepsis in cows

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Deep digital sepsis is a condition which can be triggered by puncture wound and an infected sole ulcer and has often become incidental and multiple structures within the foot including digital cushion, the navicular bursa the digital interphalangeal joint and sometimes the flexor sheaths. Resolution of the necrotic processes in these structures sometimes reaching by aggressive antibiotic therapy along with trimming and blocking the foot. "Coring" is a surgical option for treatment the advance cases to save the affected cows from casualty slaughter. Twelve milking cows with sever deep digital sepsis was studied clinically and the Coring as an alternative to digit amputation introduced by blowey 1990 was performed under field condition. Defect in the horn of lateral claw of the hind limbs in the form of sole ulcer were identified in all cows under study. Following application of a block to the sound claw a hoof knife is inserted through the sole of the affected claw and into the necrotic area. Moving in a circular "Coring" motion of hoof knife and producing a hole 3 or 4 Cm diameter in the planter aspect of the foot and extending to the full depth of the lesion was the procedure accomplished in all diseased cows. Daily flushing the hole with running water recommended for 4 consecutive days just to prevent the hole becomes block with either faecal or bedding material or the granulation tissue. Complete