AHC -05

A Preliminary Study of Prevalence of Laminitis in Nigerian Trade Horses at Obollo-Afor, Enugu State, Nigeria

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Abstract
The study was carried out to investigate prevalence and risk factors for laminitis in Nigerian horses by the use of conventional radiological indices for laminitis diagnosis. A total of 212 Nigerian horses were evaluated in a 4 month period comprising of 2 months of the dry season(January and February 2016) and 2 months of the rainy season (June and July, 2016). Confirmed hoof-related forelimb lameness horses were radiographically assessed for laminitis. The horses were grouped based on sex, season and aged as young (1 – 5 years), adult (6 – 10 years) and old (11 years and above). Out of the 212 horses assessed, 66 (31.1%) had hoof-related lameness conditions while 39 (18.4%) horses were radiographically confirmed to be laminitic. Females (8.5%) had a slightly non significant ($p > 0.05$) higher prevalence of laminitis than male horses (9.9%).Young (1.4%) horses had the least prevalent rate of laminitis whereas adult (9.0%) and old (8.0%) horses had the highest. Prevalence of laminitis was significantly ($p < 0.05$) higher in rainy season (11.8%) than dry season (6.6%).

Keywords: Nigerian horses, laminitis, hoof, lameness

Introduction

Laminitis is one of the most common causes of lameness in horses (Cripps and Eustace, 1999; Stashak, 2002). Laminae are the structures which attach the pedal bone to the inside of the hoof wall; if these laminae become inflamed or damaged they can cause severe pain and distress. The pedal bone may then rotate within the foot, or in more severe cases the pedal bone may sink within the foot (Stashak, 2002). Most frequently, laminitis will occur in both front feet which is logical given that horses bear approximately 60% of their weight on their front limbs (Baxter, 1994).

The purpose of this study was to radiographically confirm laminitis in Nigerian horses using radiographic morphometric hoof indices and to assess its prevalence rate with respect to sex, age and season.

Materials and methods

The study was a cross-sectional study carried out in Nigerian horses at Obollo-Afor horse lairage, Southeastern Nigerian. Nigerian horses are a collection of the mixed Arewa breed and their crosses with the Arabian, Dongola, Barb-Arab and Sudanese breeds which are not distinguishable from one another based on any specific breed characteristics (Ihedioha and Agina, 2013).A total of 212 Nigerian horses were evaluated in a 4 month period comprising of 2 months of dry season and 2 months of rainy season. Research visits to the lairage were made once every week during the study period. Radiographic examination of the hooves of the 66 horses that had hoof-related forelimb lameness was carried out according to the methods of Cripps and Eustance (1999) and Collins *et al.* (2011) for laminitis confirmation.

The data generated from the distribution of laminitis according to sex, age and season were subjected to descriptive statistics and association of sex, age and season with laminitis were analyzed using chi square. Significance was accepted at $P < 0.05$.

Results and Discussion

The results of the prevalence of laminitis showed that male horses had a higher prevalence of laminitis than females (Table 2). However, the prevalence of laminitis showed no sex significant ($p > 0.05$) association with sex. Young horses had the least prevalent rate of laminitis whereas adult and old horses had the highest (table 3). Prevalence of laminitis was higher at rainy season than dry season (Table 4). Prevalent of laminitis had a significant association with age and season (Tables 3 and 4).

Table 1: Prevalence of laminitis between sexes

Sex	Total no Sampled	Freq. of laminitis	Prevalence of laminitis (%)
Male	92	18	8.5 %
Female	120	21	9.9%
Total	212	39	18.4%

χ^2=0.019, df =1 ($p > 0.05$)

Table 2: Prevalence of laminitis between age groups in the 212 horses sampled

Age of horse	Total no Sampled	Frequency of occurrence	Prevalence of laminitis
1–5years (Young)	38	3	1.4%
6–10years (Adult)	100	19	9.0%
11years plus (Old)	74	17	8.0%
Total	212	39	18.4%

χ^2=8.69, df =2 ($p< 0.05$)

Table 3: Prevalence of laminitis between seasons

Season	Total No Sampled	Freq. of laminitis	Prevalence of laminitis (%)
Dry season	118	14	6.6%
Rainy season	94	25	11.8%
Total	212	39	18.4%

χ^2=20.7 df = 1 ($p< 0.05$)

A relatively high prevalence of laminitis in female than male horses could be attributed to many factors. First, it could be that the female horses are many kept for reproduction and there could be chances they were provided more with grain and other sugar supplement which are laminitis-inducer. Secondly, if the females were kept for breeding, they may for a long time be lacking in exercise. This is true because Cripps and Eustance (1999), Pollit (2003) and Redden (2003) reported that poor or impaired blood supply to the hoof owing to lack of exercise or any other factors can trigger off laminitis in horses. The seasonal increase in the risk of laminitis in the rainy season compared with the dry season is more likely to be related to true seasonal factors such as grazing behavior and the nutritional content of the forage. This is because Pollit (2007) associated pasture as a major risk factor for laminitis in horses irrespective of breed, age and uses.

Again, since all the sampled horses were unshed, working and walking on bare feet might also have predisposed them to laminitis. Morrison (2010) reported that horses that are overworked on hard surfaces are often predisposed to laminitis and other hoof lesions.A higher prevalence of laminitis in horses aged 11 years and above agrees with the work of Alford *et al*. (2001) who reported that for chronic laminitis , horses aged 10 years and above are of greater risk for laminitis.

Conclusion

Out of the 212 horses assessed, 18.9% of horses were confirmed laminitic radiographically. A higher prevalence of laminitis was recorded in male than in the female horses, though there was no significant association with sex. Seasonal prevalence of laminitis was also recorded more in the rainy season than the dry season. Young horses had the least prevalence while the adult horses had the highest prevalence of laminitis.

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