Analysis in horse hair as a means of evaluating selenium toxicoses and long-term exposures.

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Source

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Reasons for performing study

Horses are very susceptible to chronic selenosis if grazed on seleniferous forages for a prolonged period.

Materials and methods

In this study, mane and tail samples from horses that exhibited classical hoof lesions of chronic selenosis, were analyzed by inductively coupled plasma mass spectrometry for selenium (Se) content. The horses had grazed for six months from approximately May 15th until November 15th, each year for three grazing seasons in a pasture containing seleniferous forages and water sources with elevated Se concentrations.

Results

The segmented hair samples showed a cyclic pattern in Se concentrations in the mane and tail that corresponded to entering and exiting the contaminated pasture. The Se concentration in the tail of one horse could be traced for three grazing seasons.

Conclusions and clinical relevance

These results demonstrate that in some cases hair samples can be used to determine Se exposure in horses for up to three years post-exposure.

Treatment of experimentally induced osteoarthritis in horses using an intravenous combination of sodium pentosan polysulfate, N-Acetyl glucosamine, and sodium hyaluronan.


Source


Reasons for performing study

To assess the effects of sodium pentosan polysulfate (PPS), N-acetyl glucosamine (NAG), and sodium hyaluronan (HA) in horses with induced osteoarthritis (OA).

Materials and methods

An experimental study of adult Standard bred horses (n = 16). OA was induced arthroscopically in 1 intercarpal joint; 8 horses were administered 3 mg/kg PPS, 4.8 mg/kg NAG, and 0.12 mg/kg HA (PGH), intravenously (IV), weekly and 8 horses were administered an equivalent volume of saline IV until study completion (day 70). Horses underwent a standardized treadmill exercise program. Clinical and radiographic findings and synovial fluid analysis were evaluated throughout the study. Macroscopic, histologic, histochemical, and biochemical findings were evaluated after necropsy. Comparisons of interest included OA and non-OA joints of saline treated horses and OA joints of PGH treated horses and OA joints of saline treated horses. Results were statistically analyzed with significance set at P < .05.

Results

OA caused increases in clinical assessment scores, synovial fluid variables, radiographic, macroscopic, and histologic cartilage scores, synovial fluid and cartilage chondroitin sulfate 846-epitope and glycosaminoglycan concentration. Total radiographic scores, total macroscopic joint pathology and macroscopic cartilage pathology scores were significantly reduced in horses treated with PGH compared with saline treated horses. Synovial fluid total protein concentration and white blood cell count were higher in OA joints of PGH treated horses compared with saline treated horses. There were no other significant differences between treatment groups.

Conclusions and clinical relevance

Improvements in macroscopic variables were not supported by other outcomes. Further evidence is needed before PGH can be recommended as a therapeutic option for osteoarthritis in horses.