Link Between Drugs and Racehorse Injuries is a Work In Progress

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Higher levels of two different non-steroidal anti-inflammatory drugs (NSAIDs) were identified in Thoroughbred racehorses suffering musculoskeletal injuries in Kentucky Racing Commission races compared to non-injured horses. But whether these elevated levels contribute to musculoskeletal injuries or not remains to be determined, reported a group of veterinary researchers from throughout the United States.

"Horse racing and training injuries are considered an unavoidable part of racing by some, while others attest that these injuries could be due to one thing only: drugs," relayed researcher Levent Dirikolu, DVM, MVSc, PhD, from the Department of Veterinary Biosciences at the University of Illinois, Urbana.

"Few studies have been published that critically evaluate the potential causes of racing and training injuries," added Dirikolu.

Various horse and environment-related factors are considered potential causes of racehorse injuries, including:

- Conformation;
- Age;
- Gender;
- Preexisting injuries;
- Environmental and nutritional conditions;
- Length of race;
- Track surface and condition;
- Frequency of starts, and;
- Training method.

To investigate the potential role of the NSAIDs phenylbutazone, flunixin meglumine, and naproxen on musculoskeletal injuries, Dirikolu and colleagues collected blood samples from horses competing in official Kentucky Racing Commission races between Jan. 1, 1995, and Dec. 31, 1996. NSAID levels in injured, winning, and randomly selected (control) horses were measured.

Higher concentrations of phenylbutazone and flunixin were detected in the injured horses than winning or control horses; however, most (70%) of the injured horses had phenylbutazone levels less than 7 µg/ml, which is below the drug's minimal effective concentration.

Most horses in the injured group (81%) had apparent plasma concentrations of flunixin great than or equal to 0.1 µg /ml (the proposed minimal effective concentration of flunixin) ,whereas most injured and control horses did not have detectable levels of naproxen.

Dirikolu added, "Further studies must be designed to determine whether higher plasma concentrations of NSAIDs are associated with an increased risk of musculoskeletal injuries.

"It is clear that other possible risk factors contribute to musculoskeletal injuries of horses, and these must be controlled for in future studies to determine the role of NSAIDs as a possible risk factor in musculoskeletal injuries of racehorses," he said.

Since most racing- and training-related racehorse deaths are due to musculoskeletal injuries, understanding factors that contribute to injuries would enable trainers, veterinarians, and racing officials to better control and prevent these injuries, concluded Dirikolu.

The study, "Nonsteroidal anti-inflammatory agents and musculoskeletal injuries in Thoroughbred racehorses in Kentucky" was published in the June 2009 edition of the *Journal of Veterinary Pharmacology and Therapeutics*.