Effect of Non-Steroidal Anti-Inflammatory Treatment at the Time of Vaccination

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Administration of a non-steroidal anti-inflammatory drug (NSAID) at the time of vaccination can impair the immune response to the vaccine. Authors’ addresses: College of Veterinary Medicine, Michigan State University, East Lansing, MI 48824-1314 (Zoll); Maxwell Gluck Equine Research Center, University of Kentucky, Lexington, KY 40546 (Horohov, Page, Chambers, Betancourt, Stewart); e-mail: dwhoro2@uky.edu. *Corresponding author; †presenting author. © 2013 AAEP.

I. Introduction
Whereas horses are routinely vaccinated to prevent infectious diseases, adverse reactions remain a concern. The co-administration of a non-steroidal anti-inflammatory drug (NSAID) with vaccination is sometimes used to reduce the risk of an adverse reaction. Although the reasoning behind this may seem sound, such treatments could affect the ability of the horse to respond to the vaccine. We assessed the effect of treating horses with an NSAID on the response to a commercially available equine influenza vaccine.

2. Materials and Methods
Eighteen adult horses and 18 equine influenza–naive yearlings were used in this study. The horses were assigned to one of the following three groups containing six horses: NSAID treatment and vaccination; no NSAID treatment and vaccination; and no NSAID treatment and no vaccination. Blood samples were collected before the initial vaccination and on 7, 14, 21, and 28 days after vaccination for the determination of equine influenza–specific antibodies by enzyme-linked immunoassay (ELISA) and hemagglutination inhibition (HI) and cell-mediated immune responses.

3. Results
The use of the NSAID resulted in a significant ($P < 0.05$) decrease in the antibody response to the vaccine as measured by HI antibodies and ELISA. Likewise, there was a reduced cellular immune response to the NSAID-treated group.

4. Conclusions
The administration of an NSAID at the time of vaccination reduced both the antibody and the cellular immune response to the vaccine. This occurred in both previously immune and naive individuals.

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