Is Intra-Articular Mepivacaine, Before Intra-Articular Administration of Hyaluronan and/or Cortisone, Associated With Joint Sepsis?

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Administration of intra-articular joint medication with hyaluronan and/or cortisone on the same day as performing intra-articular anesthesia does not pose a substantial risk of joint sepsis. It is not necessary to delay intra-articular therapy when lameness has been localized to a joint using intra-articular anesthesia. Authors’ address: Oakridge Equine Hospital, P. C., 6675 East Waterloo Road, Edmond, OK 73034; e-mail: zubrod@oakridgevet.com (Zubrod). © 2006 AAEP.

1. Introduction
Diagnostic anesthesia is essential for the accurate localization of lameness in the horse. Perineural and intra-articular anesthesia with local anesthetic solution are common methods for localizing equine lameness. When intra-articular anesthesia results in significant improvement in the lameness, it is believed that intra-articular medication with hyaluronan and/or cortisone will likely be of benefit in cases without substantial bone or soft-tissue injuries. Local anesthetic solutions have been shown to impair neutrophil chemotaxis and phagocytosis as well as cause delayed wound healing because of the depression of collagen and glycosaminoglycan synthesis.\(^1\)\(^2\) Cortisone also causes depression of the local immune system when administered intra-articularly.\(^3\) It has previously been speculated by some veterinarians that performing intra-articular anesthesia and intra-articular medication with hyaluronan and/or cortisone on the same day may synergistically depress the local immune response and result in an increased risk of septic arthritis.\(^4\) Rheumatologists, however, commonly combine local anesthetic solutions and cortisone in the same injection.\(^5\) The purpose of this retrospective study was to determine the risk of synovial sepsis associated with administering intra-articular hyaluronan and/or cortisone on the same day as intra-articular anesthetic solution. It was our hypothesis that intra-articular administration of mepivacaine before intra-articular medication with hyaluronan and/or cortisone would not result in joint sepsis.

2. Materials and Methods
Medical records of all horses undergoing intra-articular anesthesia for lameness localization from February 1, 2003 to January 1, 2005 were reviewed. Information obtained from the medical records included signalment, joints treated with intra-articular anesthesia, joints treated with intra-articular hyaluronan and/or cortisone, dose of intra-articular medication, subsequent antibiotic treatment for 2 wk after intra-articular medication, and whether
the client and patient were subsequently seen at the hospital. Owners of the horses that were administered intra-articular anesthesia and hyaluronan and/or cortisone were contacted by telephone and asked a series of three questions to further establish if joint infection occurred after injection.

3. Results

Intra-articular anesthesia was performed on 798 joints in 499 horses. Intra-articular anesthesia with mepivacaine was performed on 500 joints in 273 horses that did not receive intra-articular treatment on the same day.

In 226 horses, 298 joints were injected with hyaluronan and/or cortisone after intra-articular anesthesia, which was an average of 1.3 joints per horse. The mean age of the horses was 9.54 yr, and the group included 189 Quarter Horses, 15 Paint Horses, 13 Thoroughbreds, 2 Morgans, 2 mixed breeds, 1 Arabian, 1 Warmblood, 1 Fresian, 1 Appaloosa, and 1 National Show Horse. Hyaluronan was injected into 290 joints (range 5–22 mg/joint), methylprednisolone acetate was injected into 187 joints (range 20–100 mg/joint), and triamcinolone was injected into 268 joints (range 2–10 mg/joint). A combination of hyaluronan, methylprednisolone acetate, and triamcinolone was injected into 162 joints. Of the horses having intra-articular diagnostic anesthesia performed without intra-articular medication with hyaluronan and/or cortisone, one horse was treated with antibiotics within 2 wk of the procedure.

The owners of 194 of 226 horses (85.8%) in this study returned to the hospital for evaluation of the same or additional patients. Additionally, owners of 168 of 226 horses (74.3%) that received joint injections with hyaluronan and/or cortisone after intra-articular anesthesia responded to the telephone survey. Owner follow-up was available on 228 synovial structures. None of the horses for which owner follow-up was available fit the criterion for joint sepsis after intra-articular anesthesia and intra-articular medication with hyaluronan and/or cortisone on the same day.

4. Discussion

Intra-articular diagnostic anesthesia does not seem to be associated with a substantial risk of joint sepsis when performed before intra-articular administration of hyaluronan and/or cortisone. It has been well documented that mepivacaine and cortisone may decrease the ability of the horse to defend against bacterial contamination of a joint, and bacterial inoculation of the joint is a risk associated with arthrocentesis. Moreover, multiple arthrocenteses may increase the risk of bacterial contamination and subsequent joint inoculation; however, the risk does not seem to be associated with the medications being administered. The incidence of septic arthritis after intra-articular anesthesia alone was 0.2% during this time period in our hospital. There was no incidence of septic arthritis after intra-articular medication with hyaluronan and/or cortisone in the horses for which follow-up was available. This suggests that the risk of sepsis after anesthesia and medication of a synovial structure is small, and the risk does not seem to be greater than the risk of sepsis after anesthesia only.

It is possible that septic arthritis did occur in a portion of the horses that did not return to our hospital for treatment or whose owners did not respond to the telephone survey. We believe that this is unlikely. A high percentage of clients returned to our hospital for evaluation of the same or other horses, and a substantial number of clients responded to our telephone survey.

The results of this study suggest that there is not a substantial risk of synovial sepsis when performing intra-articular anesthesia and intra-articular therapy on the same day, provided that there is strict adherence to aseptic technique. Delaying intra-articular therapy after diagnostic anesthesia seems to be unnecessary.

References