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Horse Pain and its Impact on Reproduction

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A broodmare battling chronic laminitis, a stallion with recurrent uveitis, and a maiden mare with persistent tendinitis: While these horses and their conditions are each distinct, the animals do share the potential for exhibiting pain-related fertility problems. A University of Florida (UF) veterinarian described how equine pain might influence reproduction ability, along with how to detect subtle signs of pain, at the 2013 American College of Theriogenology Conference & Symposia, held Aug. 7-10 in Louisville, Ky.

L. Chris Sanchez, DVM, PhD, Dipl. ACVIM, an associate professor and Director of UF's Hofmann Equine Neonatal ICU, admitted equine researchers don't know much about the pain-fertility relationship, but she pointed out that "the whole horse affects reproduction ... external environment can affect whatever body system you're dealing with.

"I can't imagine having some of the horrifically nasty ocular conditions that many of our patients have," she offered as an example. "If you have something with a really nasty eye, don't be surprised if you have trouble with getting that mare pregnant."

Citing a clear correlation between lameness and fertility in cattle, she said there's something to be learned from what researchers have determined in looking at other species. But first she reviewed pain for her veterinary audience.

"Pain is supposed to be protective, it isn't always bad, and it should be respected," Sanchez said, reviewing the different kinds of pain: physiologic, inflammatory, neuropathic, and dysfunctional. (Find an in-depth discussion of pain in [Understanding Chronic Pain](#).) An example of the protective nature of pain is preventing worsening of an injury—keeping an animal from bearing weight on a broken leg, for example. Certain pain types are generally paired; for instance, veterinarians often see physiologic and inflammatory pain together in the form of colitis or laminitis, because many of the commonly painful conditions in horses have an inflammatory component.

Pain can also multiply on itself; horses might experience a condition called neurologic windup, when the pain extends far beyond the inciting incident. "Pain can come up, and you can't always figure out why," said Sanchez. "There are probably many causes of dysfunctional pain in horses on which we don't have a handle. Don't just assume (that a painful horse for which you can't find a diagnosis is) a wimp."

Signs of Equine Discomfort/Pain

What makes equine pain especially problematic is the simple fact that horses can't describe it. "In people, pain is self-reported," she said, meaning it is what the patient says it is. "In animals and nonverbal humans, pain assessment is always based on the perception of an observer, be that an owner, trainer, or veterinarian."

The best place to start with the assessment is taking a thorough case history, noting that inherent differences between horses can be based on the following:

- Breed;
- Age;
- Sex;
- Genetics;
- Environment (food withdrawal, anesthesia recovery, hospitalization, management);
- Source (visceral, somatic, neuropathic); and
- Duration (acute vs. chronic).

"I take the history facing the horse, give him a chance to chill, and watch his interaction with the owner and environment," Sanchez said.

Next she conducts a comprehensive physical examination of "the whole horse, up and down and sideways," and watches how he behaves in the stall over time. Veterinarians quantify painful behaviors using time budgets and events. Some signs and events she watches for:

- Frequent swapping of the resting hind limb;
- Holding the ears in an "airplane" position;
- Time spent with the head in a corner (whereas nonpainful horses would be at the window or front of the stall more frequently);
- Stomping feet; and
- Vocalizing (excessive whinnying in a way that is unusual for a given horse);

She said researchers have been measuring facial expressions of pain in other species; most recently a group at the University of Montreal evaluated a "grimace scale" in rodents. And at a recent horsemanship science conference, researchers reported on a study in which they analyzed equine facial pain during routine castration surgeries. Scientists working in the field are hoping to develop a similar scale for horses because these systems in other species appear accurate and repeatable, even when performed by individuals with limited training or experience.

Veterinarians shouldn't forget to visit with the person who spends the most time with the horse; they might have noticed small changes in horses' behavior that others haven't. Sanchez gave the example of a horse that became increasingly agitated when his groom tried to brush his neck. The horse ended up having cervical (neck vertebrae) degenerative joint disease (arthritis), and after treatment went from "not placing to winning the Southeast circuit as a hunter.

"What seemed like a little thing to the owner was not a little thing to the horse," she said.

Pain and Reproduction in other Species

Humans and pigs have higher pain thresholds during late gestation in labor that reverse postpartum, which could be due to hormones causing opioid effects (based on research in sows).

Looking to dairy cattle, veterinarians have seen inversely proportional relationships between pain and fertility; lameness has had a substantial impact on dairy cows' welfare and the producers' bottom line (research based on a Florida study of claw lesions). Sanchez reviewed a few other findings, in which lame cows:

- Had a lower pregnancy rate after first insemination after calving;
- Had lower body condition scores during estrus, as well as lower social status and decreased estrous behavior;
- Had increased numbers of ovarian cysts;
- Achieved low conception at first service, showed a lack of ovarian activity, and experienced an increased time to conception; and
- Might have decreased sexual or "stress-related" pheromones or decreased ability to process them.

Even though cattle are ruminants and not bred to perform as athletes the way horses are, "There's no reason to assume (pain's effect on reproduction is) different in horses," Sanchez said.

Analgesic Treatment

Moving on to pain management, Sanchez ran down the list of options and combinations veterinarians generally use. Practitioners select analgesics (painkillers) for each of their painful patients based on personal experience and what they learn from emerging studies and information (veterinarians discussed pain management during an AAEP table topic last year). "It's important to remember that drugs work differently in different species, so the best pain killer for people or dogs is not necessarily the best option for horses, and vice versa," she explained. "Horses with extremely painful conditions, such as severe laminitis, may require a constant IV infusion of one or more medications to relieve pain."

Sanchez described some of the pros and cons of each drug class, some of the combinations that seem to work best, as well as which ones appear most likely to cause more harm or little good.

Most drugs currently available to treat pain in horses have the potential for adverse effects, she explained, primarily associated with the gastrointestinal tract or kidneys. It's also important to recognize that many drugs can work differently in healthy horses versus painful horses and pain itself can have many of the same effects. So, no matter the analgesic of choice, efficient response to pain is the best approach. "It's a pay now or pay later kind of situation," she explained. "Decrease windup by getting pain under control early."

Sanchez summarized that with few existing research studies on equine pain, "It is not particularly surprising that an association between pain and fertility—or infertility—has not been established in the horse. The lack of data, however, certainly does not infer lack of relationship."