Pain Can Be Neuritis and Not Laminitis

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10 Foot Neuritis Signs in Your Horse (Neuritis/Neuropathy)

1. Hoof test is okay but still foot sore
2. No increased pulses but still foot sore. Radiographs are the same as in the past or are even improved (less rotation) but still foot sore.
3. Talented farrier sees improved foot from past but foot sore
4. Talented farrier does routine hoof trim and horse is sore 1-2 days after – this is not an error, this is a sign of Neuritis
5. Middle of the winter and no grass, or on a dirt lot with no grass, and suddenly foot sore. Not okay going across rocks, gravel, or hard ground (Allodynia – excess pain response to normal stimuli)
6. Middle of winter standing in snow or very cold over 5 days in a row and suddenly foot sore. (Note: ice therapy helps to treat Laminitis in horses, but the horse will still be sore due to this being Neuritis and not Laminitis)
7. Bute of little help – did help in the past but even on it daily for weeks and still foot sore
8. Stall rest/DMSO IV/ Ace which helped in the past but not helping now
9. Shoes/Boots do help some but less than 50%
10. Lame for months and months even after trying many things

These 10 signs are Neuritis cause by past Laminitis and not new/acute Laminitis.
What Happens to Horse’s Nerves in Laminitis Resulting in Neuritis?

Direct irritation and damage to the nerves by high levels of Insulin.

Insulin Resistance leads to:

- “A reduction of neurotrophic signaling which contributes to nerve pathogenesis” (Hosseini, 2013). Insulin’s usual action is to promote nerve growth, but Insulin Resistance blocks Insulin’s normal function.
- “In neuron, Insulin Resistance disruptions of pathways leads to mitochondria dysfunction, oxidative stress and dysfunctions or death of the nerve” (Hosseini, 2013)

Less blood flow (vasoconstriction) to nerves damages them. Insulin at high levels causes vasoconstriction.

Physical crushing of nerves

- In all Laminitis, bone density is lost. This leads to nerves not being protected by being exposed to more shear forces and in horses shifting weight and pressing harder on areas of foot, leading to nerves bearing more weight.
- As blood flow is lost the coffin bone can sink and press on nerves.
- As horses founder (rotate), the shifting coffin bone smashed the nerves/blood vessels.
- In human medicine they are looking into neuroma formation in diabetic people’s feet – very possible in horses also. Damaged nerves hypertrophy into bundles of tissue creating pain.

Inflammatory mediators create damage to nerves both locally in the foot and in the spinal cord.
How to Help Stop Neuritis Pain (3 Steps)

1. Need to control high Insulin – if this is not done, you are throwing Dixie cups of water on a forest fire. Slow/Steady hay eating plus ration balancers with extra protein plus HEIRO means success.

   Eventually after testing, will slowly start a turn out program.

2. Physically protect feet – shoes, boots, casts, pads, impression material – to allow nerves to rest. Confine to a small area for one week.

3. Medications
   - COX₂ blocking agents are most effective. 640 times more COX₂ specific (Fibrocox in Equioxx)
   - The key is to get high levels into the horse quickly, then drop dose down but extend its use. Early on, we would get great effect then stop or cut the dose – big mistake, the horse would be sorer than before. Avoid the black hole by using COX₂ blockers 21 days in a row.
   - We will combine a COX₂ blocker, Equioxx, with Tylenol (Acetaminophen) for 7 days in a row and then go to only Equioxx another 14 days for 21 days total.
   - Often COX₂ medications like Equioxx or Previcox are used at doses too small to stop nerve pain. Arthritis dosages are not helpful in the beginning of therapy.

Plan for A 1,000-lb. Horse

**Day 1:**
- Equioxx – 2 Tablets AM, 1 Tablet PM
- Tylenol (500 mg) – 18 Tabs AM, 18 Tabs PM

**Day 2-7:**
- Equioxx – 1 Tablet AM, 1 Tablet PM
- Tylenol (500 mg) – 18 Tabs AM, 18 Tabs PM

**Day 8-21:**
- Equioxx – 1 Tablet AM
- Stop Tylenol

Note: Fully aware that dose of Equioxx is higher than arthritis dose, but this is needed in Laminitis pain due to nerve problems in feet. Often people will say “we tried Equioxx already and it did no good” and that is due to not front loading it at a higher dose for 7 days.

Note: In rare circumstances, some horses will still show soreness at day 10 of this program. If that is seen, will add Gabapentin to Equioxx.

Why? See benefit of COX₂ blocker Equioxx and Gabapentin working synergistically.
Ponies/Minis That Are 250-500 Pounds

Dosing for 500 Pounds

**Day 1-7:** Equioxx – 1 Tablet AM, 1 Tablet PM
Tylenol (500 mg) – 9 Tabs AM, 9 Tabs PM

**Day 8-21:** Equioxx – 1 Tab AM
Stop Tylenol

*If sore at Day 10, add Gabapentin

Dosing for 250 Pounds:

**Day 1-7:** Equioxx – 1 Tablet AM, 1 Tablet PM
Tylenol (500 mg) – 5 Tabs AM, 5 Tabs PM

**Day 8-21:** Equioxx – 1 Tab AM
Stop Tylenol

*If sore at Day 10, add Gabapentin

DO NOT do ¼ or ½ doses of Equioxx compared to 1,000 pound horses in these 250-500 pound horses. It will fail.

Possible mechanics of why they need a higher dose for Neuritis than arthritis per pound?

- Greater spinal aspect of pain in ponies/minis
- COX₂ induced hyperalgesia increased with duration of Diabetes in Ramos study. Ponies/minis get earlier episodes and more Laminitis events than horses
- More COX₂ action due to LOX pathway crosstalk requiring more COX₂ blocking
- Length of time a Laminitis horse could affect need

How to Dose Gabapentin?

What I have learned over the years

1. The drug has a short half-life, so need 3 times a day dosing. I have tried twice a day with failure and three times a day with great success

2. I have tried the 20 mg/kg dose but horses seemed very sedated so I tried 15 mg/kg with similar results. So use 10 mg/kg three times a day and the horse is good and comfort is improved.

3. Gabapentin has a low bioavailability (16%) so it takes about 3-5 days to see effects. Do not get upset if in two days you only see a little.

4. If it is going to work you will see it by Day 8

5. I always combine with Equioxx tablets at the same time. Studies show is works better than Gabapentin-like drugs alone
Can Tylenol Help my Horse?

At the 2016 AAEP Convention Dr. Foreman, from University of Illinois Veterinary School (old professor of mine), did combine Equioxx and Tylenol and found this combination effective in pain relief.

The exact mechanism of how Tylenol works is unknown, but there are opinions that it may be through the cannabinoid receptors in the brain of people and horses.

Helpful Hints to Help Avoid Nerve Pain

1. Boots – physical barrier between earth and foot to protect nerves – also in winter keeps feet warmer avoiding cold-induced hyperalgesia
2. Socks inside boots – help wick away moisture (plain white socks)
3. Leg wraps/blankets in winter to keep feet warmer
4. Increase time inside barn in winter to keep warmer
5. Mats if outside to protect nerves. Also acts as a barrier against cold earth in winter
6. Deep bedding – protecting feet
7. Pads in soles – can use sole guard if no shoes, this will help in bare feet or in shod horses. Add a pad prior to shoe placement
8. Frequent picking out feet to remove snow/snow
9. Indoor turnout with cushion, no rocks to avoid flares
10. Shovel snow allowing a dirt area and not just standing in 6 inches of snow. Put saw dust, shaving, used straw in area for traction
11. Don’t skip trims – huge problem setting off flares

Be sure to go to www.equinemed Surg.com for more information and helpful links.

Proper diet and exercise is essential for horse health. This product is a supplement to help maintain horse health. This product is not intended to diagnose, treat, cure, or prevent disease.