

The Application of Acupuncture in Equine Internal Medicine Disorders

Mark V. Crisman, DVM, MS, CVA, Dip ACVIM

Over the past several decades, the demands on equine athletes and performance (racing, eventing, endurance riding) have greatly increased. Therefore, most equine acupuncturists have responded by focusing their practice of TCM on musculoskeletal and gait abnormalities. However, the observance and practice of basic TCM principles has a wide range of applications in many equine internal medical disorders. Overall, western medicine takes a very linear, controlled, problem oriented approach to medical cases carefully dissecting the signalment, history, diagnostic exercise and therapeutic decision making process. Traditional Chinese medicine takes a more 'circular' approach and, like western medicine, seeks to identify the underlying cause of the problem but the exercise is focused on restoring the flow and balance of energy within the body. As my medical practice is based in a Veterinary Teaching Hospital, I have access to all the latest technologies western medicine has to offer (from CT scans and MRI to a complete array of diagnostic and clinicopathological testing services). This "Western" information, along with a basic understanding of TCM practices and principles has allowed me to develop a more "integrative" approach to the practice of veterinary medicine and I truly believe this to be the ideal solution to helping our patients. Integrative medicine is broadly defined as "practicing medicine in a way that selectively incorporates elements of complementary medicine into comprehensive treatment plans alongside solidly orthodox methods of diagnosis and treatment" (Rees, 2001). Regardless of your approach, it is important to maintain/observe the perspective of *seeing the relationship of the symptom(s) to the whole body*.

My overall approach and application of TCM to equine medical cases is derived from textbooks, journals and discussions with colleagues. Generally, a practitioner can get good results using empirical points for various internal medicine problems. The use of these points should not be undervalued as their description and evolution has occurred over thousands of years of careful observation. Additionally, empirical points serve as a good foundation or basis while the practitioner develops knowledge and experience with TCM.

Gastrointestinal Condition Acupuncture has been widely used to treat various gastrointestinal (GI) disorders in horses. Numerous studies in several species including humans, dogs, horses and pigs have documented the effect of acupuncture on the general physiology and function of the GI tract. Studies have objectively evaluated acid secretion, neurohormonal alterations and gastrointestinal motility. However, we must keep in mind the extreme variation in the structure and function of the GI tract among species and any extrapolations must be made with caution. Additionally, successful and reliable models for the induction of colic in conscious horses have been problematic. Several recent studies by Merritt & Xie and Skarda have evaluated a colic-model in horses whereby the duodenum, large intestine or rectum are distended by a balloon inserted through an indwelling cannula. The method results in a reproducible and controllable means for inducing colic (abdominal pain) in conscious horses. The objective of these studies was to evaluate the analgesic potential of various acupuncture treatments following controlled balloon distention. While the results of some of these studies were equivocal, progress is being made to objectively evaluate the effects of acupuncture in horses with colic. Another study by East evaluated the effects of acupuncture on 76 colic cases presented to a referral clinic over a 3 year period (1999- 2001).⁴ Chronic colic, acute colic, post-operative ileus and enterocolitis cases were included in the study group. A variety of breeds and ages ranging from 2 to 25 years were represented. Clinical success of the acupuncture treatment was determined by return of auscultable borborygmi, cessation of reflux, cessation of colic, return of appetite, ultrasonographic evidence of motility and defecation. Negative outcomes comprised 25/76 horses and included strictures, neoplasia, torsions, intestinal adhesions and endotoxic shock. Positive outcomes included 51/76 horses and involved spasmodic colics, tympany, post-operative ileus, small intestinal dilation and enterocolitis. Initial findings of this retrospective study are supportive of including acupuncture for the treatment of intestinal ileus and chronic colic.

Numerous studies have demonstrated the effectiveness of acupuncture in the treatment of emesis and nausea in humans. One particularly well designed and controlled study by Shen et al was published in *JAMA* in 2000. The

study was a randomized controlled trial with 104 women with high-risk breast cancer. The objective of the study was to compare the effectiveness of electroacupuncture vs. minimal needling and mock electrical stimulation or antiemetic medications alone in controlling emesis among patients undergoing a highly emetogenic chemotherapy regimen. The study clearly demonstrated that electroacupuncture was the most effective method of controlling emesis in these patients.

Acupuncture point prescriptions are indicated for the following disorders:

Large Bowel Impaction (pattern-dry): Dry needle BL 20, 21, 25, ST 36, SP 6, Guan Yuan Shu (BL 26), Bai-hui, GV-1

Esophageal disorders including choke: PC 6, BL 17, ST 36, LI 4, CV 17, 12, 22, ST 41, BL 13 to 16 and BL 23.

Diarrhea (acute): SP 6 & 9, LI 11, BL 20, and GV 1 & 14 (never Moxa).

Diarrhea (chronic): BL 20, 21, Bai Hui, SP 6, GV 1, 3 & 14, ST 36, *Jian-wei* (located on right side of neck, 1 cm dorsal to the jugular vein at the junction of the upper and middle 1/3 of the jugular groove). Chapter 23 – The Application of Acupuncture in Equine Internal Medical Disorders 443

Post-operative ileus: BL 21, 25, 27; Outer BL points-2cun lateral to BL 21 (BL 50) BL 25 & 27; Huatuojiagi points-1 cun lateral to dorsal midline at same level as BL 21, 25 & 27, *Baihui*, GV 1, ST 36. Occasionally, I will use EA at BL 21 – BL 21.

Abdominal pain (nonsurgical)- Spasmodic colic (pattern, LI cold): BL 20, 21, 25, SP 4, ST 36, 2, GV 1, *Baihui*.

*NB- caution must always be exercised in using acupuncture to treat colic in horses as it may cause symptomatic relief of clinical signs and delay the decision for surgery in critical cases.

Immunomodulation

Several studies in humans have demonstrated that acupuncture modulates immune responses both by increasing the concentrations of endogenous opioid peptides and enhancing lymphocyte proliferation.¹ Current evidence suggests that acupuncture stimulates an increased release of the neuropeptide beta-endorphine. Endorphins will interact with some cytokines (interleukin-10) which will down regulate the inflammatory component while other cytokines may amplify the interaction between neuropeptides, cytokines and acupuncture.² Other studies have reported that acupuncture activates both cell proliferation and leukocyte production and enhances microbicidal activity via increased antibody, globulin, complement and interferon production.³ Another study by Hahm et al examined the effect of electroacupuncture (EA) at ST 36 on natural killer (NK) cell activity in rats with anterior hypothalamic lesions.⁴ The study concluded that EA enhances or restores the NK cell activity previously suppressed by an anterior hypothalamic lesion. These studies suggest that acupuncture may exert its actions on both pain and immune processes.

Overall, when considering the goal of balancing *Yin* and *Yang*, there exists an overlap between points which will stimulate or upregulate the immune response and those which will downregulate-sedate or suppress immune function. Conditions indicated for immunostimulation include recurrent infections, any infectious diseases (including EPM, Lyme disease, and viral infections) and immunodeficiency diseases. Many of these conditions may actually reflect a disturbance in the balance of immune function rather than a deficiency of all functions. Appropriate antimicrobial therapy should be used in conjunction with acupuncture.

General immunostimulatory points include: GV 14, LI 4, 11, ST 36, SP 6, BL 23, GB 39, BL 11, 17, 20, and GV 4.

Suppression of the immune system would be indicated in allergic and autoimmune diseases. The most common applications involve allergic skin diseases and respiratory dysfunction (RAO). The most common points for immunosuppression are: BL 23, 47, LI 11, LIV 3, SP 10, CV 6 and GB 20.

Ophthalmic Diseases

Inflammation of the eye is viewed in TCM theory as invasion of exogenous wind heat and upward disturbance of

heat in the liver. Stagnation of *Qi* and Blood occurs in the affected meridian. Conditions with ocular inflammation include keratitis, conjunctivitis and recurrent uveitis- all of which are treated similarly.

Local points: (most commonly used) ST 2, BL 1, BL 2, TH 23, GB 1, *San Jiang*.

Distal points: LI 11 (clears heat, dispel wind), BL 18 (liver association pt), GB 20 (dispels wind), LIV 3 (source point, Shu stream pt), LI 4 (master point for face, clears heat).

Ting points: TH 1, SI 1, BL 67, GB 44.

The following points and anatomical descriptions are referenced in *Handbook on Chinese Veterinary Acupuncture and Moxibustion*.

Recurrent Uveitis (Liver fire); GB-20, BL 1, 2, San Jiang, GB 1 TH 23, LIV 3 *Da-Mai*: on angular v. 1.5 cun ventral to the medial canthus. Bleed 1 cm deep.

San-Jiang: On the angular vein about 1 cun ventral to the medial canthus. Bleed 1 cm deep.

Chui-Jing: In the temporal fossa 1 cun above the zygomatic process of the frontal bone, caudo-ventral insertion 2-6 cm deep.

Corneal Ulcers Regardless of the initiating insult (trauma, bacterial, viral), an ulcer can be treated by “surrounding the dragon” or needling the points directly around the eye; BL 1, TH 23, GB 1,

Respiratory

Several theories have been proposed as to why acupuncture may affect lung function in horses. Acupuncture has been demonstrated to cause a significant increase in sympathetic nerve activity, along with the release of endogenous opioids and catecholamines, all of which may have beneficial effects on airway function. Opioids and catecholamines can inhibit the release of acetylcholine from airway parasympathetic nerves along with relaxation of bronchial smooth muscle.

Infectious respiratory diseases (viral, bacterial) generally result in disturbances in the Lung *Zang Fu* organ system with exogenous pathogenic cold, heat and wind invading through the nasal cavity. Acupoints indicated for general immunostimulation are generally indicated for treatment. Additional points for specific conditions include:

Pharyngitis: LU 5, 7, 11, LI 1, 11, 18, ST 10, PC 6

Laryngeal Hemiplegia: E-stim ST 9...ST 9, LI 18...LI 18, dry needle ST-4

Pneumonia: LI 4, 11, LU 10, GV 14, GB 20, BL 12,13, LU 6, 7 combined with western therapy including antibiotics, NSAIDs and supportive care

Recurrent Airway Obstruction- Equine Asthma can be the result of either an Excess or Deficiency. Similar to asthma in humans- airway hyperresponsiveness (observed both in humans and horses with RAO) may be the result initially of an upregulated immune response but the immunological profile may alter as the condition progresses and becomes more chronic. A recent study investigated the effects of a single acupuncture treatment in horses with severe recurrent airway obstruction.⁴ They evaluated (pulmonary function measurements) a single acupuncture treatment by an experienced acupuncturist, and a single acupuncture treatment using predetermined points by a veterinarian with no acupuncture training. The authors concluded that acupuncture resulted in no improvement in lung function parameters and that acupuncture should not replace conventional medical treatments. Keep in mind that this was a single acupuncture treatment and lung function was measured at 20 mins and 1, 2, 4 and 24 hours after treatment. Additionally, environmental adjustments (removing dusty hay and straw) were not made. Points to consider when treating RAO include:

Bai hui, BL 13, 23, 26, LU 1& 7, KI 6, ST 36, 40, GV 14, PC 6

Exercise Induced Pulmonary Hemorrhage (EIPH); From a TCM standpoint, this may be due to EITHER excess

Heat in the Lung and/or Stomach (meridian begins on the nares) seen in racehorses in a 'hypermetabolic state' OR a *Yin* Deficiency (primarily kidney) observed in horses that are chronically dry and hot.
BL 13-15, 17, 20, 25, 42-48, LI 4, 20, LU 11, KI 3, 6, GV 5, 7, 9, 14.

Laminitis Laminitis is a vascular disorder in the equine foot that occurs as a result of diseases such as retained placenta, carbohydrate overload, intestinal inflammation and ischemia. Additionally, laminitis may be induced by excessive corticosteroid administration and concussion ('road founder'). Once the blood supply to the laminar corium is disrupted by any mechanism (vasoconstriction, arteriovenous shunting, perivascular edema, microthrombosis) the laminae begin to degenerate and the hoof wall separates from the laminar corium resulting in displacement or rotation of the third phalanx. While there appears to be no unifying mechanism for laminitis from a Western standpoint, we can address meridian imbalances from an Eastern perspective. So, for example, a racehorse that is laminitic from excessive corticosteroid administration may have an excess in the Liver Channel. An aged pony with pituitary dysfunction and chronic laminitis may have Kidney Deficiency.

Ting points are important from both a diagnostic and therapeutic standpoint when addressing laminitis. In acute laminitis, I have found hemoacupuncture (18-20g needle) very helpful. Local points to be needled include ting points TH 1, SI 1, LI 1, PC 9(dry needle). If the rear feet are involved use GB 44, LIV 1, ST 45, and KI 1. Follow-up treatments in acute cases and initial treatment in chronic cases are dry needled. Additional points that may be useful include SI 3, LI 2, 3, 4, LU 7, 9, TH 2 and 3. Depending on palpation findings, back *Shu* may be used including BL 13, 18, 19 and 23. It is critical to follow up the acupuncture treatment with western approaches including ice water, NSAID's and pentoxifylline.

Behavior and Training Problems

Generally, pain is the underlying cause of many behavioral issues with horses. These 'attitudinal' demonstrations include; pinning ears, turning hindquarters toward people, herd bully or outcast, rejects grooming, bucking or rearing when mounted or being saddled, shying or bucking when asked to perform and refusing jumps - just to name a few. Many of these problems are a result of the performance requirements placed on horses by owners and the unnatural conditions the horses are forced to live in. A thorough history, acupuncture examination and meridian balancing with attention to tings points will help determine if a problem or imbalance exists. From a TCM standpoint, emotions are specifically related to *Zang-fu* organs in that an imbalance in the organ meridian system may create issues with its particular emotion. For example, Anger is related to the Liver, which controls the ascending qualities of *Qi*.

Anxiety is a disturbance of consciousness or *Shen* which is housed in the Heart. A sudden shock may create disharmony in Heart *Qi* and result in hyperexcitability or anxiety. This problem is often observed in performance mares, especially during estrous. Dr. Allen Schoen describes a technique that I have successfully used on several mares. A stainless steel surgical staple is placed on the inside of each ear. The staple is placed in the center of ear, midway from the tip to the base of the ear and midway between the rostral and caudal edges of the ear. *NB- Do Not place the staple through the ear veins! Horses will generally require a twitch and/or sedation. The staple instruments often make a 'clicking' sound so cotton placed in the ear may be helpful. Some mares will become 'ear shy' after this procedure so warn the clients accordingly. If the staples result in the desired effect, leave them in place. Result often occur within a few days to a week and may last for months or a lifetime. This procedure is generally less effective with 'anxious' geldings or mares where the problem is not associated with estrous.

Additional acupoints that may be helpful for anxiety include:
BL 1, 2, 15, 20 & 21, PC 6, 9, TH 17, HT 7, GV 26 and GB 34

Headshaking is a condition in horses in which the horse shakes or jerks its head uncontrollably without any apparent stimulus. Headshaking ranges in severity from a mild annoyance to a devastating affliction that renders the horse unusable and unsafe. While causes for this condition are rarely determined, several causes have been suggested including middle ear disorders, ear mites, guttural pouch mycosis, allergic disorders, EPM and allergic

rhinitis. Radiographs of the skull may be diagnostic in cases that are associated with otitis media/interna and bone changes of the petrous temporal and stylohyoid bones. Western treatments include bilateral infra-orbital neurectomy, cyproheptadine (H1 blocker and serotonin antagonist)

General References

The following list is to acknowledge the use of information obtained from books, lectures and individuals in the preparation of this manuscript.

Schoen, A et al. *Veterinary Acupuncture: Ancient Art to Modern Medicine*. Second edition. Mosby, St. Louis, MO. 2001.

Schoen, A, Wynn S. *Complementary and Alternative Veterinary Medicine*. Mosby, St. Louis, MO. 1998.

Wynn S, Marsden S. *Manual of Natural Veterinary Medicine*. Mosby, St. Louis, MO. 2003.

Klide A, Kung S. *Veterinary Acupuncture*. University of Pennsylvania Press, Philadelphia, PA. 1977.