The use of acupuncture in practice

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Acupuncture is increasingly becoming accepted as a valid modality in human and veterinary medicine. This is occurring in spite of hotly debated aspects on many levels including:

- Traditional Chinese medicine based vs medically based
- Traditional Chinese veterinary acupoint charts vs western human based charts
- Differentiation of acupoint with non acupoint and point specificity
- Sham vs real acupuncture

It is worth learning the basics of traditional Chinese medicine (TCM) concepts to appreciate many of the outstanding contributions made by physicians thousands of years ago and to understand the "politics" of today. The Yin and Yang balance concept can today be largely recognized as their sense of the autonomic nervous system and the relationship between sympathetic and parasympathetic functions and the diurnal nature of our physiology. They also can be credited with understanding and using the somato-visceral reflex phenomena that underpins much of acupuncture practice. It's a genuinely holistic medical system and goes much deeper than this, but there's inevitably the business of separating the wheat from the chaff. Among the problems is a tremendous amount of controversy in the translations from the early Chinese writings.

The politics can be roughly expressed in the context of the non-medical traditionalist schools vs the medical schools of thought. Traditionalists in the West are often trained in colleges requiring no modern medical knowledge using the "French energetics" translation of TCM (from Soulie de Morant circa 1920). This was written during the 200 year period of an official ban by the Chinese government of acupuncture teaching from their own medical colleges, driving the practice into an underground business by non medical lay people. Chairman Mao's revival of acupuncture and TCM during their "cultural revolution" was not the most academic approach and led to the "barefoot doctors" notion of health care in that time.

The scientific community in China and the West has since made huge strides in elucidating the physiological effects of acupuncture through the rapidly advancing neurosciences, bringing about a progressive appreciation of this ancient practice and serious interest in further investigations. Many TCM tenets of acupuncture are challenged and discredited through the science creating a growing divide in the acupuncture communities. Where the medical camp may occasionally be criticized is in ignoring the holistic aspects and the *art* of medicine. The art of medicine including the practice of acupuncture is of huge importance, although much of the scientific community appears more inclined to only recognize the outcome of the double blind randomized control study. The demands include standardized treatment protocols when most experienced acupuncturists learn that different patients with the same diagnosis may require individualized acupuncture treatments (e.g. the number of needles used, intensity and depth of needle stimulation) for the best responses. This potentially leads one to incorrect conclusions by unintended failures in experimental designs, and confounds the pursuit of EBM.

For an appreciation of acupuncture related scientific investigations and their conundrums, the Society for Acupuncture Research published an open access article, *Paradoxes in Acupuncture Research: Strategies for Moving Forward,* which is essential reading for interested parties. From its summary of conclusions the basic research reveals:[1]

- Basic science experiments, mostly in animals and healthy human subjects, show that acupuncture needling has demonstrable physiological effects that are dependent on needling parameters, including needling insertion depth, type, amplitude and frequency of needle stimulation.
- In animal models, needling parameters appear related to therapeutically relevant outcomes, e.g. analgesia, antihyperalgesia, decreased tissue inflammation, decreased elevated blood pressure, and altered gastrointestinal motility.
- The extent to which the precise needling location (e.g., acupuncture point versus nearby non-acupuncture point) influences physiological responses remains unclear, although, in animal models, different effects have been demonstrated when needles are inserted in different body regions (e.g., abdomen versus limb).

The opportunities to improve clinical outcomes in practice are huge providing it is integrated into the treatment strategies at the primary care level. The predominant use has been as a treatment of last resort in chronic conditions, where a surprising level of satisfaction is still obtained, but the optimum acupuncture intervention is early in the course of diseases which threaten to progress into chronic disease, and/or evolve into complications from stress including immune impairment, endocrine dysfunction, poor healing, autonomic imbalance, depression, sleep disturbance, behavior problems, and unwanted drug side effects! These are not uncommon occurrences in practice and there is solid evidence that acupuncture often prevents as well as effectively resolves these problems. It also has a very rare risk of serious complications (estimated in man as 0.55 in 10,000 patients) and only low risks for minor self limiting adverse events.[2,3]

Let's consider an actual case to illustrate the various acupuncture effects and benefits. Bertie, a 3 year old Labrador presented with a 1 year history of Irritable Bowel Disease (IBD) and pruritis. His symptoms as described by the owner included "gurgle guts", periodic severe abdominal spasm, variable stools (loose, runny, granular, excessive amount of grass, mucus and blood at times), lip-smacking, pain when passing wind, terrible smells when passing wind, severe loss of weight and condition (including muscle weakness), and generally very unsettled & very subdued. He had been referred to a specialist for diagnostics including colonoscopy, endoscopy and ultrasound in September 2010, and was put on Prednisolone, Buscopan, Atarax, & Atopica medications. He had been tried on several different prescribed diets, but in spite of the treatment efforts he failed to improve. The owner felt Bertie was suffering too much, in continued decline, and she was contemplating euthanasia when a friend suggested acupuncture.

On Bertie's first visit for acupuncture he presented as dull, listless, and very thin weighing 22 kg. Palpation revealed mild pain signs to acupoints LR13 and BL50 (see figure 1). Bertie showed no resistance to the acupuncture and retention of the needles (0.25 x 25 mm diameter and length) that were advanced into muscle, gently rotated in alternating directions, and left in situ. He would generally lie down after the needles had been placed and was always cooperative to subsequent examination and acupuncture. The owner remarked on how happy he appeared on return visits and the 1st notable change from the start of the acupuncture was his improved demeanor.

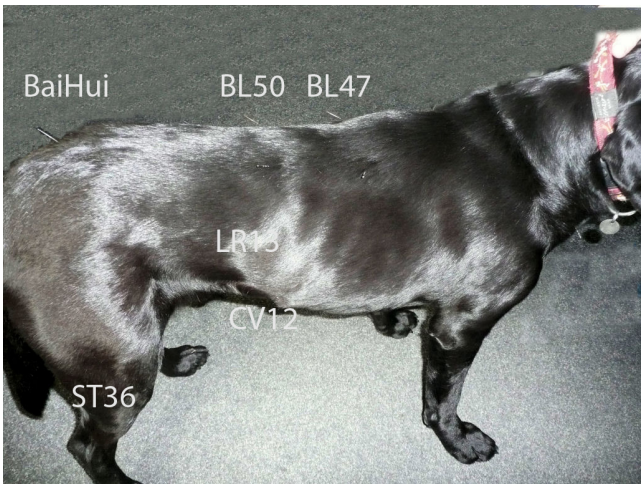

Figure 1. Bertie's acupuncture treatment. Note his thin body condition. He palpated tender to gentle pressure on the acupoints Liver 13 (LR13) and Bladder 50 (BL50). These are the "alarm" and "association" points for the spleen/pancreas and the stomach respectively demonstrating the viscero-somatic reflex or organ referred pain. The sites are segmentally related to the sympathetic nerve supply to these organs. These acupoints in addition to some others were needled for appox. 15 minutes.

He was further treated with acupuncture at weekly intervals for 2 further treatments, then at 10 days, then at 3 weeks and then at 8-12 week intervals. A number of other acupoints were used at different times including Large Intestine 10, 11, Bladder 25, 49, Conception Vessel 1 & 12. After 6 weeks he had regained his appetite, gained 1 kg in body weight, and had discontinued the steroids. The owner noted a steady reduction in symptoms from the 1st treatment and esp. after 3 treatments. After 5 months his weight was up to 28 kg and he was discontinuing the Atarax and Buscopan medications with no episodes of any further gastrointestinal disease signs. He still had pruritic hind feet and anal glands. He continued to receive top up acupuncture at approx. 2-3 month intervals for a year and was signed off with advice to return on any signs of recurring GI symptoms. More on Bertie's acupuncture later.

The physiological actions of acupuncture that have been studied and relate to the response in this case of IBD remind one of the importance of following the ever evolving sciences of physiology, endocrinology, immunology, and neurology and appreciation of the limits of current knowledge of these systems and their inter-relationships. We do not yet understand the pathophysiology of many chronic conditions including IBD and hence apply the term "syndrome". Traditional Chinese medicine is based on diagnosing syndromes rather than specific diseases and is more at home treating them as such than modern medicine is. Syndromes are often very frustrating to treat conventionally.

Functional Magnetic Resonance Imaging (fMRI) of the brain during acupuncture has revealed that one of the initial reactions is modulation of the limbic-paralimbic-neocortical network.[4] The limbic system (the emotional centre of the brain) deactivation during acupuncture accounts for the frequently observed anxiolytic change and drowsiness. This combined with the up-regulation of endogenous opioid release relates to the analgesic effects. The emerging research points to this limbic connected network is mediating the antipain & antianxiety as well as the autonomic, endocrine, immunologic and sensorimotor functions.[4,5] The limbic system is a proportionately

much larger part of our animal patients' brains as compared to man and the emotional component of chronic pain and illness is therefore a very important matter in veterinary medicine. The emotional or affective component (call it stress) has significant risks for increasing sympathetic tone and suppressing parasympathetics. Consider all of the organs are dependent on the normal functioning of the autonomics. Not only the organ functions are affected but abnormal autonomics also negatively impact on the endocrine and immune systems. Medications aimed at treating autonomic dysfunction are fraught with complication risks. Acupuncture has demonstrated its tendency to normalize autonomics and esp. to reduce increased sympathetic tone in many studies.[6] Acupuncture stimulation of certain points on the limbs (e.g. ST36, LI11) have been shown to increase intestinal motility during experimentally induced atony through the parasympathetics.[6] A further benefit of stimulation of vagal activity is this also activates a cholinergic anti-inflammatory effect by suppressing cytokine synthesis.[8]

The IBD syndrome involves visceral pain and referred somatic pain through mechanisms still poorly understood. The common approach to treating pain is the use of non-steroidal anti-inflammatory drugs (NSAIDs). These have significant side effects risks, esp. for an already diseased gastrointestinal tract. Steroids are commonly used for IBD, but also have serious side effects. Recent research in human IBD showed prednisolone treatment further up-regulates urea synthesis, which increases the hepatic loss of nitrogen and promotes body catabolism.[9]
The analgesia effects of acupuncture are through a number of local, segmental and central mechanisms that are under continuing investigation. A discussion of these mechanisms and the limits of our understanding are presented in the excellent review by Han.[10]

Visceral pain and disease management is often overlooked as an opportunity to use acupuncture, and is a place where the safety and multiple benefits of acupuncture make it all the more appealing. It can be done along side conventional care with some caveats, e.g. exogenous opioid administration will interfere with the acupuncture effect of up-regulation of the endogenous opioid release. The correct dose of acupuncture appears to vary with individual sensitivity, but generally once or perhaps twice per week for up to 30 minutes is superior to daily treatment and/or sessions lasting 1-2 hours where acupuncture tolerance develops and an anti-opioid (cholecystokinin) is released. There are genetic factors in determining one's endogenous opioid and cholecystokinin susceptibilities which helps explain the varying responses between individuals.

Back to Bertie: please note that the acupoints needled and labeled on his trunk are segmentally related to the diseased organs. These points are used diagnostically and therapeutically are noted as organ association and alarm or recruitment points in the ancient Chinese texts. They are now known to modulate the sympathetic activity as well as segmentally driven analgesia. Acupoints on the fore and hindlimb, e.g. ST (Stomach) 36 – historically the Master point for the upper abdomen, have been shown to increase GI motility through a vagal response. Not only is the motility response therapeutic but the vagal stimulation is also anti-inflammatory. The autonomic regulation is progressively provoked in subsequent treatments to be reset centrally; these are not transient reactions lasting only a few hours! His last acupuncture treatment was in Nov 2012 and on 21/08/14 I received an email from the owner reporting that he has remained free of IBD, and on no medications aside from a topical steroid for his pruritic anus!

The conditions to consider using acupuncture for include:

- chronic and esp. multi-faceted illnesses where conventional treatment is inadequate or has significant side effects risks
- pain management including post operative patients where confinement is enforced often leading to distressed emotional states
- geriatric patients with greater drug side effects risks
- sporting animals to manage muscle / myofascial pain and other musculo-skeletal injury
- nerve injury cases (electro-acupuncture indicated)
- autonomic dysfunction (e.g. faecal or urinary incontinence, bowel motility)
- infertility

Considering the advances in the study of acupuncture and its growing acceptance by academics and the public, it is hopeful in future that primary vets and specialists might recommend acupuncture treatment more often. Or perhaps, if they have time and are so inclined, they might take an appropriate course in veterinary acupuncture. The Association of British Veterinary Acupuncturists (www.abva.co.uk) run courses in acupuncture practice.

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