

## Evidence-Based Veterinary Medical Acupuncture

The call has been made to “stop giving alternative medicine a free ride.”<sup>1</sup> That is, by allowing for two types of medicine, “conventional” and “alternative”, two sets of standards develop. According to the authors of this now famous quote from a *New England Journal of Medicine* editorial, “There cannot be two kinds of medicine – conventional and alternative. There is only medicine that has been adequately tested and medicine that has not, medicine that works and medicine that may or may not work...But assertions, speculation, and testimonials do not substitute for evidence.”<sup>2</sup> Evidence-based medicine plays an important role in helping clinicians ensure that the procedures they employ in their practice are safe and effective, and helps veterinarians meet their ethical obligations to their patients by recommending treatment plans that are clinically sound and appropriate.<sup>3</sup> Applying the standards of evidence-based medicine (EBM) is a challenge and opportunity to improve the quality of practice and training programs in acupuncture.<sup>4</sup> Evidence-based guidelines for medical acupuncture have already been proposed and published.<sup>5</sup> Taking a pro-active approach and advancing acupuncture in this manner will help strengthen the foundation of medical acupuncture, improve patient safety, and promote beneficial clinical outcomes, by teaching acupuncture approaches based on outcome rather than opinion.

The importance of keeping up-to-date on the latest available complementary and alternative medical (CAM) evidence has relevance for both CAM practitioners and those referring for CAM treatments. That is, referrals to CAM providers can generate liability for the practitioner making the referral. Before referring patients for treatment, a veterinarian should ensure that the CAM practitioner is not practicing an unsafe or ineffective therapy, and s/he should describe to the patient what the recognized risks and benefits of the referral are, based on available medical literature.<sup>6</sup> When evidence indicates either serious risk or inefficacy, the health care provider should “avoid and actively discourage” pursuit of such treatments.<sup>7</sup>

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<sup>1</sup> Angell M and Kassirer JP. Alternative medicine – the risks of untested and unregulated remedies. *NEJM*. 1998; 339:839-841.

<sup>2</sup> Ibid.

<sup>3</sup> Adams KE et al. Ethical considerations of complementary and alternative medical therapies in conventional medical settings. *Ann Intern Med*. 2002; 137:660-664.

<sup>4</sup> Ernst E. An evidence-based approach to acupuncture. *Acupuncture in Medicine*. 1999; 17(1):59. Summary obtained on 02-08-03 at [www.medical-acupuncture.co.uk/journal/1999jun/59.shtml](http://www.medical-acupuncture.co.uk/journal/1999jun/59.shtml).

<sup>5</sup> Rotchford JK. A proposal for evidence-based guidelines for medical acupuncture. *Medical Acupuncture*. 1998;9(2):29-36.

<sup>6</sup> Cohen MH and Eisenberg DM. Potential physician malpractice liability associated with complementary and integrative medical therapies. *Ann Intern Med*. 2002; 136:596-603.

<sup>7</sup> Cohen MH and Eisenberg DM. Op. cit.

One of the most common conditions for which veterinarians provide and refer for acupuncture treatment is degenerative joint disease (DJD). Evidence from several human studies on acupuncture for DJD has demonstrated successful pain reduction; a large-scale, randomized, sham-controlled, NIH-supported trial evaluating acupuncture for patients with DJD is currently underway.<sup>8</sup> Despite evidence of efficacy and relative safety of conventional needle acupuncture (where needles are withdrawn after a short period of time), an ineffective and possibly harmful technique that is “commonplace”<sup>9</sup> in veterinary acupuncture warrants serious re-evaluation based on evidence from two recent, randomized, controlled clinical trials. Many may be surprised to learn that the techniques commonly taught in veterinary acupuncture today were initially introduced in the 1970’s as a result of “the vagaries of chance rather than any rational systematic or academic approach to the discipline.”<sup>10</sup>

The time has come to re-evaluate the teaching and practice of some of these techniques. Regarding “gold bead implantation”, an author stated: “One must surely question the scientific and medical competence of practitioners who employ this dangerous method.”<sup>11</sup> Touted as “99% effective” in some dogs with hip dysplasia, advocates praise it as an inexpensive, quick, and easy to perform procedure with no postoperative pain or exercise restriction.<sup>12 13</sup> The procedure involves implantation of small pieces of gold wire (“beads”) around the hip when animals are under heavy sedation or general anesthesia. The acupuncture points are GB29, GB 30, and BL 54 – all in periarticular locations (see Figure 1). GB 29 is located midway between the cranial ventral iliac spine and the greater trochanter of the femur, over the cranial gluteal nerve.<sup>14</sup> GB 30 lies midway between the greater trochanter and the ischial tuberosity, over the sciatic nerve.<sup>15</sup> BL 54 is just dorsal to the greater trochanter. Although the specified aim for placement of gold wire is adjacent to but not within the joint, the difficulty of attaining this goal through spinal needle insertion at the surface should be obvious. According to Durkes, “Point location is very precise, and no positive effect will be obtained if bead placement is off by even a fraction of an inch.”<sup>16</sup> In addition to the difficulty of ensuring adequate placement for beneficial effect, the

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<sup>8</sup> Grober JS and Thethi AK. Osteoarthritis: When are alternative therapies a good alternative? *Consultant*. February 2003, pp. 197-202.

<sup>9</sup> Rogers P. Serious complications of acupuncture...or acupuncture abuses? *American Journal of Acupuncture*. 1981; 9(4):347-351. Obtained at <http://users.met.auth.gr/~karanik/english/articles/apabuse.html> on 030303.

<sup>10</sup> Jaggar DH and Robinson NG. Chapter 1, History of Veterinary Acupuncture. In Schoen AM (ed.): *Veterinary Acupuncture, Ancient Art to Modern Medicine, 2<sup>nd</sup> Ed.* St. Louis: Mosby, Inc. 2001, p. 13.

<sup>11</sup> Rogers P. Op. cit.

<sup>12</sup> Durkes TE. Gold bead implants. *Problems in Veterinary Medicine*. 1992; 4(1):207-211.

<sup>13</sup> Durkes TE. Chapter 25, Gold Bead Implants. In Schoen AM (ed.): *Veterinary Acupuncture – Ancient Art to Modern Medicine*. St. Louis: Mosby, Inc. 2001, pp. 303-305.

<sup>14</sup> Hwang Y-C and Limehouse JB. Chapter 9, Canine Acupuncture Atlas. In Schoen AM (ed.): *Veterinary Acupuncture, Ancient Art to Modern Medicine, 2<sup>nd</sup> Ed.* St. Louis: Mosby, Inc. 2001.

<sup>15</sup> Ibid.

<sup>16</sup> Durkes, TE, Op. cit., 1992.

potential for injury arising from placement of wire into neural or articular structures is high. Figure 2 shows the vulnerability of the sciatic nerve as it passes caudodorsal to the greater trochanter. Even if gold beads can be accurately placed at the time of insertion, what prevents their migration in ensuing years? Specialists should be aware of these issues, because they may see animals with injuries from wire implantation, and not recognize why an animal has metal fragments placed around the hip, overlying or embedded in the sciatic nerve.

Despite its lack of plausibility, the following mechanism of action has been put forth: “[G]old beads emit a minute positive electrical charge that neutralizes the negative electrical charge of the joint, with the result being that the animal is free of pain and experiences no additional arthritic changes in the joint. Decalcification of the arthritic joint will be seen in some dogs when follow-up radiographs are taken 6 months to 1 year after implantation.”<sup>17</sup>

Permanent metal wire implantation is considered dangerous in human medicine. A review of traumatic injuries following acupuncture revealed that four out of ten cases of injuries to the spinal cord or spinal nerve roots were the result of needle fragment migration.<sup>18</sup> A systematic review of adverse events following acupuncture from the Japanese literature included twenty-six cases of intentionally embedded needles.<sup>19</sup> Another compilation of confirmed or suspected adverse effects of acupuncture included mention of several reported cases of central nervous system injury and diagnostic confusion on behalf of radiologists due to acupuncture needle implantation.<sup>20</sup>

Two separate double-blind evaluations of gold wire implants for dogs with hip dysplasia have shown that the technique offers no statistically significant benefits.<sup>21 22</sup> The more recent study (from Michigan State University) employed both prospective objective and subjective evaluations of functional outcome. Data obtained from the gait laboratory showed that both treatment and control groups before treatment and at 1 and 3 months after treatment showed no significant differences. In fact, dogs in the acupuncture group showed a statistically significant decrease in vertical impulse formation one month after gold bead implantation, indicating worsening of lameness. None of the remaining kinetic and kinematic parameters showed any significant differences at any time during

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<sup>17</sup> Durkes TE. Gold bead implants. *Problems in Veterinary Medicine*. 1992; 4(1):207-211.

<sup>18</sup> Peuker ET et al. Traumatic complications of acupuncture. *Arch Fam Med*. 1999;8:553-558.

<sup>19</sup> Yamashita H et al. Systematic review of adverse events following acupuncture: the Japanese literature. *Complement Ther Med*. 2001; 9(2):98-104.

<sup>20</sup> Anonymous. Confirmed or suspected adverse effects of acupuncture. Obtained at <http://websites.golden-orb.com/pain-education/100194.php> on 030303.

<sup>21</sup> Hielm-Bjorkman A et al. Double-blind evaluation of implants of gold wire at acupuncture points in the dog as a treatment for osteoarthritis induced by hip dysplasia. *The Veterinary Record*. 2001; 149:452-456.

<sup>22</sup> Bolliger C et al. Gait analysis of dogs with hip dysplasia treated with gold bead implantation acupuncture. *Vet Comp Orthop Traumatol*. 2002; 15:116-122.

the study period. The authors suggest that the worsening observed in the acupuncture group was most likely due to foreign body inflammatory reaction in surrounding tissue. One dog from this study developed a severe non-weightbearing lameness and cellulitis following acupuncture, necessitating the animal's removal from the study.

Based on the evidence of inefficacy of gold bead implantation for canine hip dysplasia, along with the potential for causing patient injury, this treatment appears to fall in the category described by Cohen and Eisenberg as one that should be actively avoided and discouraged. According to these authors, when evidence about a CAM treatment indicates either serious risk or inefficacy, "If the patient insists on pursuing the treatment, the physician should document the discussion, including his or her disclosure to the patient of evidence regarding documented or potential dangers and any proven lack of efficacy, if such data exist."<sup>23</sup>



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<sup>23</sup> Cohen MH and Eisenberg DM, op. cit.