

Complementary and Alternative Medicine (CAM) in the veterinary Critical Care Unit (CCU)

As in most other areas in veterinary medicine, CAM is acquiring a greater presence in the care of the critically ill. Veterinarians in charge of these patients may field requests from clients to administer herbs, homeopathics, flower essences, or glandulars to their animals during the hospital stay. Or, clients may ask that a non-veterinarian CAM practitioner provide treatments on hospital premises. Determining which therapies pose risks or offer benefits is difficult without evidential support. Delegating care to non-veterinarians with questionable or unfamiliar credentials adds risk and exposure for veterinarians already managing a busy practice.¹

Research indicates that human CCU patients suffer from a variety of stressors, including fear, pain, anxiety, lack of sleep, loneliness, lack of control, nightmares, and, for those on prolonged mechanical ventilation, inability to speak or communicate.² Severely ill animals attached to one or more tubes and subjected to incessant talking, lights, beeps, and even music would likely find the experience similarly upsetting. According to one of the leading researchers in the ethics of human critical care, “Alleviating the stresses and symptoms of critically ill patients will enhance the quality of their ICU stay, which itself achieves an important beneficial and ethical outcome, an outcome that should be a priority of every intensivist.”³ Many veterinary personnel working with critically ill patients enthusiastically embrace CAM as a means to improve animals’ quality of life and survival. In human medicine, a 2005 survey published in the *American Journal of Critical Care* indicated that over 90% critical care nurses reported eagerness or openness to using CAM in the CCU setting.⁴

Pain, sleep deprivation, and immobilization can dramatically impair recovery. Pain and stress sensitize the central nervous system, causing “wind-up”. This further amplifies pain and stress and increases cardiac demand, vasoconstriction, blood viscosity, platelet aggregation, and catabolism.⁵ In fact, “In many patients with severe posttraumatic or postsurgical pain, the ensuing

¹ Tracy MF and Lindquist R. Nursing’s role in complementary and alternative therapy use in critical care. *Critical Care Nursing Clinics of North America*. 2003;15:289-294.

² Rotondi AJ, Chelluri L, Sirio C, Mendelsohn A, Schulz R, Belle S, Im K, Donahoe M, and Pinsky MR. Patients’ recollections of stressful experiences while receiving prolonged mechanical ventilation in an intensive care unit. *Critical Care Medicine*. 2002;30(4):746-752.

³ Silverman HJ. Symptoms management in the intensive care unit: toward a more holistic approach. *Critical Care Medicine*. 2002;30(4):936-937.

⁴ Tracy MF, Lindquist R, Savik K, Watanuki S, Sendelbach S, Kreitzer MJ, and Berman B. Use of complementary and alternative therapies: a national survey of critical care nurses. *American Journal of Critical Care*. 2005;14(3):404-416.

⁵ Lamont LA, Tranquilli WJ, and Grimm KA. Physiology of pain. *Veterinary Clinics of North America: Small Animal Practice*. 2000;30(4):703-728.

neuroendocrine responses are sufficient to initiate or maintain a state of shock.”⁶ Sometimes pharmacologic analgesics and sedatives used to make patients comfortable can themselves create other problems, such as constipation and disorientation.

Some CAM interventions can serve as safe and effective nonpharmacologic alternatives.⁷ For example, acupuncture helps counteract wind-up and provides effective analgesia for a variety of conditions.⁸ A systematic review of CAM treatments for human patients with severe pain indicated that acupuncture may provide relief for those with cancer or who were dying.⁹ Acupuncture effectively treats motility problems and nausea – common afflictions of CCU patients.¹⁰ Few contraindications preclude acupuncture, but may include bleeding diatheses, aggression, or excessive fearfulness.

Massage, or gentle, rhythmic stroking, can reduce stress, alleviate discomfort stemming from tension and immobility, and help normalize physiologic function.¹¹
¹² ¹³ ¹⁴ ¹⁵ The comfort massage provides can promote sleep – a vital restorative process.¹⁶ Pulmonary function may improve after vibratory massage.¹⁷ Contraindications to massage depend on the patient’s medical status and receptivity to touch. Patients with an unstable cardiac status or severe, uncontrolled hypertension may become over-stimulated.¹⁸ ¹⁹ Massage should be avoided near sites of fractures, contusions, thrombi, inflammation, and infection.

⁶ Lamont LA, Tranquilli WJ, and Grimm KA. Physiology of pain. *Veterinary Clinics of North America: Small Animal Practice*. 2000;30(4):703-728.

⁷ Chlan L. Integrating nonpharmacological, adjunctive interventions into critical care practice: a means to humanize care? *American Journal of Critical Care*. 2002;11(1):14-16.

⁸ Gaynor JS. Acupuncture for management of pain. *Veterinary Clinics of North America: Small Animal Practice*. 2000;30(4):875-884.

⁹ Pan CX, Morrison RS, Ness J, Fugh-Berman A and Leipzig RM. Complementary and alternative medicine in the management of pain, dyspnea, and nausea and vomiting near the end of life: a systematic review. *Journal of Pain and Symptom Management*. 2000;20(5):374-387.

¹⁰ Ouyang H and Chen JDZ. Review article: therapeutic roles of acupuncture in functional gastrointestinal disorders. *Aliment Pharmacol Ther*. 2004;20:831-841.

¹¹ Richards KC, Gibson R and Overton-McCoy AL. Effects of massage in acute and critical care. *AACN Clin Issues Adv Pract Acute Crit Care*. 2000;11(1):77-96.

¹² Hill CF. Is massage beneficial to critically ill patients in intensive care units? A critical review. *Intensive and Critical Care Nursing*. 1993;9:116-121.

¹³ Keegan L. Therapies to reduce stress and anxiety. *Crit Care Nurs Clin N Am*. 2003;15:321-327.

¹⁴ Hansen G. The role of massage in the care of the critically ill. *Kai Tiaki Nursing New Zealand*. August 2002: 14-16.

¹⁵ Hayes J and Cox C. Immediate effects of a five-minute foot massage on patients in critical care. *Intensive and Critical Care Nursing*. 1999;15:77-82.

¹⁶ Richards KC. Effect of a back massage and relaxation intervention on sleep in critically ill patients. *American Journal of Critical Care*. 1998;7(4):288-299.

¹⁷ Doering TJ, Fieguth HG, Steuernagel B, Brix J, Konitzer M, Schneider B, and Fischer GC. External stimuli in the form of vibratory massage after heart or lung transplantation. *Am J Phys Med Rehabil*. 1999;78(2):108-110.

¹⁸ Richards KC, Gibson R and Overton-McCoy AL. Effects of massage in acute and critical care. *AACN Critical Issues*. 2000;11(1):77-96.

Aromatherapy may play a supportive role in the CCU, although subjecting all animals and staff to volatile substances may become problematic. For example, inhaled oil of lavender is soporific and antinociceptive.²⁰ Passion flower (passiflora) is also sedating.²¹ However, oils with high levels of camphor can reportedly promote seizures and as such should be avoided in epileptic patients.²²

Simple rehabilitative maneuvers such as passive range of motion and assisted weight-bearing or ambulation can help preserve joint health and reduce lymph accumulation. On the other hand, aerobic exercise that places excessive demands on deconditioned patients may compromise cardiopulmonary and musculoskeletal function.²³ Veterinarians should supervise physical therapists providing rehabilitative care to critically ill patients.

Not all CAM approaches belong in the critical care setting. For example, no evidence exists supporting the inclusion of chiropractic or high-velocity adjustments in the critical care setting. Forceful maneuvers may injure patients with weakened structures. Herbs pose several hazards due to the vast unknowns regarding species-specific metabolism, alterations in pharmacodynamics and pharmacokinetics in the critically ill patient, and unforeseen drug-herb interactions.²⁴ Botanicals affecting specific neurotransmitters, such as serotonin in the case of St. John's Wort and GABA for valerian root, can produce additive sedation when combined with barbiturates, opiates, or other psychoactive medications. Common herbs such as ginkgo, ginseng, garlic, and dong quai may promote bleeding by inhibiting platelet function. Additionally, certain herbs such as dong quai contain coumarins. Many other herbs cause adverse effects and/or drug-herb interactions; insufficient research exists to fully delineate all concerns regarding these products.

Other CAM approaches, such as "energy work" (Reiki, Healing Touch, Therapeutic Touch), homeopathy, and flower essence therapy (homeopathic dilutions of flower petals soaked in water and sunlight) require further research to determine their effectiveness in veterinary CCU patients. While these therapies themselves are unlikely to cause harm, non-veterinarians providing these

¹⁹ Tyler DO, Winslow EH, Clark AP, and White KM. Effects of a 1-minute back rub on mixed venous oxygen saturation and heart rate in critically ill patients. *Heart Lung*. 1990;19:562-565.

²⁰ Barocelli E, Calcina F, Chiavarini M, Impicciatore M, Bruni R, Bianchi A, and Ballabeni V. Antinociceptive and gastroprotective effects of inhaled and orally administered *Lavandula hybrida* Reverchon "Grosso" essential oil. *Life Sciences*. 2004;76:213-223.

²¹ Wheatley D. Medicinal plants for insomnia: a review of their pharmacology, efficacy and tolerability. *J Psychopharmacol*. 2005;19(4):414-421.

²² Betts T. Use of aromatherapy (with or without hypnosis) in the treatment of intractable epilepsy – a two-year follow-up study. *Seizure*. 2003;12:534-538.

²³ Cirio S, Piagi GC, DeMattia E, and Nava S. Muscle retraining in ICU patients. *Monaldi Arch Chest Dis*. 2003;59(4):300-303.

²⁴ Adapted from Lu Y. Herb use in critical care. What to watch for. *Crit Care Nurs Clin N Am*. 2003;15:313-319.]

approaches should be instructed in infection control procedures before gaining entry to the veterinary CCU. Unregulated “glandulars”, (products made from the bovine or porcine glands or central nervous system components), may contain active hormones, contaminants, or diseased tissue and have no place in the current practice of veterinary medicine.