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Acupuncture (AP) may be a beneficial adjunctive therapy in numerous aspects of critical care medicine. It is not meant to be used instead of conventional medicine, but as an additional therapeutic modality or when conventional is not available. It may be used for analgesic and normoregulatory therapeutic effects based on somatovisceral reflexes. It may have beneficial effects in the treatment cardiovascular, neurologic, gastrointestinal and urogenital emergencies. It can be used in the treatment of cardiac and respiratory depression or arrest, arrhythmias, acute pancreatitis, vomiting, diarrhea, epileptic seizures, thoracolumbar disc disease, pyometra, postoperative analgesia as well as other conditions.

Comprehensive reviews of the neurophysiologic effects and mechanism of action of veterinary AP are available (1, 2). Veterinary cardiovascular conditions that may benefit from AP as an adjunct therapy include: shock and cardiac arrest, heart failure, arrhythmias and hypertension (3). AP modulates autonomic activity and thereby may correct abnormalities in blood pressure by altering heart rate, cardiac contractility and vasomotor tone. Stimulation of Large Intestine 4 (LI-4, He Gu) and Triple Heater 5 (TH-5, Wei Guan) cause vasodilation. Stimulation of Pericardium 6 (PC-6, Nei Guan) causes vasoconstriction as measured in blood flow in the toes and ears (3). One of the most commonly used points in the treatment of shock and cardiovascular collapse and arrest is Governing Vessel 26 (GV-26, Jen Chung). Needling and electrocautery of GV-26 were the most effective means of stimulation (4). GV-26 is located on the nasal philtrum at the level of the ventral aspect of the nares. Anatomical variation exists between species. Appropriate stimulation of GV-26 in dogs increases heart rate, stroke volume and cardiac output and causes pulse pressure changes that are comparable to those induced by injections of epinephrine (4,5). Stimulation also causes a significant increase in mean arterial pressure with a decrease in total peripheral resistance (5). These changes are mediated through increased sympathetic tone and may be blocked by propranolol (a nonspecific B-adrenergic blocker)(5). Simultaneous stimulation of Kidney 1 (KI-1, Yong Quan) and GV-26 had a synergistic effect and is very useful in treating shock, anesthetic overdose and trauma (4). Large Intestine 5 (LI-5, Yang His) may correct pulsus alternans in dogs (4).

One clinical case report demonstrated the efficacy of GV-26 in reestablishing a sinus rhythm in a dog with cardiopulmonary arrest. The dog had not responded to cardiopulmonary resuscitation (CPR) with epinephrine,
sodium bicarbonate and fluids. Unfortunately, in this patient the sinus rhythm could be maintained only with continued stimulation of the point (6).

When apnea was induced with thiopental in dogs, needling of GV-26 resulted in resuscitation of 88%, versus 40% when a nonacupuncture point was needled (7). AP of GV-26, KI-1 and HT-9 resulted in resuscitation of 14 of 15 zoo animals of seven different species, including ferret, serval and green monkey (7). Not all studies or all clinical experiences with the use of GV-26 for cardiovascular collapse have had positive effects.

AP needle or a small gauge hypodermic needle should be interted perpendicularly into GV-26 and vigorously twirled while advanced and retracted without removing it from the AP point. These points, GV-26 and KI-1 may be invaluable in situations in which epinephrine is not readily available. It is certainly worth using AP stimulation either along with conventional approaches or when they have not worked or where conventional approaches are not available.

Acupuncture stimulation of Stomach 36 (ST-36, Zusanli) has been found to be of benefit in treating systemic hypertension in dogs and humans (8).

Arrhythmias frequently accompany congestive heart failure and may be associated with myocarditis and systemic disturbances (3). Atrial fibrillation is frequently encountered in dilative cardiomyopathy of large breed dogs. Ventricular arrhythmias may accompany boxer cardiomyopathy, traumatic myocarditis and systemic disturbances such as gastric dilatation-volvulus and pancreatitis (3). AP often has a normoregulatory effect on physiologic function. Bradycardic rabbits show an increase in heart rate and tachycardic rabbits show a decrease in heart rate following stimulation of Pericardium 6 (PC-6, Neiguan)(9). Electroacupuncture of PC-6 in rabbits increased the ventricular fibrillation threshold and had a ventricular antifibrillatory effect equal to that of lidocaine (10). Mild stimulation of PC-6 decreased the frequency of VPC’s. AP appears to inhibit centrally mediated arrhythmias by increasing b-endorphin and dynorphin in the periaqueductal gray matter. These endorphins subsequently decrease norepinephrine and dopamine levels, reducing sympathetic stimulation of the heart (11).

AP for cardiovascular conditions can be quite beneficial in critical care medicine for cardiac emergencies.

AP may be beneficial for the treatment of neurological emergencies such as acute epileptic seizures, nonresponsive status epilepticus as well as traumatic spinal cord injury. The goal of AP in the treatment of acute epileptic seizures or status epilepticus is to break the seizure pattern and to increase the seizure threshold. The mechanism of action is currently not well understood, though, the normoregulatory effect of acupuncture on electroencephalographic activity is believed to be the main effect.

AP is not meant to be a substitute for conventional antiepileptic medications, but is used when they are not working or in emergencies where they are not available. AP points to consider for the treatment of status epilepticus include GV-20, GV-26, KI-1, HT-7, PC-6 and an emergency point at the tip of the ear. Dry needle stimulation is suggested(12).

Traumatic spinal cord injuries may benefit from AP. AP has been found to improve function in rats and decrease atrophy of the spinal cord white matter, in addition to sparing the ventral horn motor neurons if used within 1 hour after trauma (13). AP in spinal trauma has been shown to modulate electrolyte and free-radical generation and serum cortisol, b-endorphin, serotonin, LDH and SGPT levels (13). Local AP points cranial and caudal to the lesion along the bladder meridian and distal extremity points related to the affected spinal cord segments are suggested.

AP can be extremely beneficial as an adjunctive therapy in the treatment of GI motility disorders such as...
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Acute vomiting and diarrhea. AP has a normoregulatory effect on GI motility through somatovisceral reflexes. It can also be beneficial for its analgesic and anti-inflammatory effects in the treatment of acute pancreatitis. Numerous studies document the efficacy of AP for GI conditions (14). AP points that have documented as efficacious in acute GI disturbances include Pericardium 6 (PC-6, Neiguan) and Stomach 36 (ST-36, Zusanli) as well as segmental paraspinal bladder meridian points such as Bladder 20, 21,25.

A unique urogenital effect of AP is in the stimulation of uterine motility in an open pyometra. AP points associated with uterine motility including BL-28 and SP-6 may be beneficial in stimulating the expulsion of purulent vaginal discharge. AP points to stimulate the immune system, LI-4, LI-11, ST-36 and GV-14 may be beneficial in increasing the response to infection.

In recapitulation, AP may be extremely beneficial as an adjunctive therapy in the treatment of many critical care patients including cardiovascular, neurological, gastrointestinal, urogenital and other conditions.

References