The Role of Complementary and Alternative Medicine in End-of-Life Care

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In the early part of the 20th century, people often died at home where family, community, and clergy assisted them with the dying process. As the century progressed, dying began taking place in hospitals. Consequently, the physician’s role in end-of-life care changed as well.

Today, the physician has a special responsibility for meeting patients’ needs and desires at the end of life. Despite this responsibility, little research is available into patients’ needs and preferences at the end of life; many physicians still struggle to understand what constitutes a “good death” for their patients and how to assist them in this final transition.

In an attempt to shed light on what constitutes a good death, Karen Steinhouse and her research team conducted focus groups and in-depth interviews of patients, families, and health care providers. Their results reiterated four previously identified themes of palliative medicine: the importance of pain and symptom management; clear communication and decision-making; preparation for death; and completion, which refers to “the process of life review, resolving conflicts, spending time with family and friends and saying goodbye.”

As patients work through the process of completion, it is especially important for them to be treated and seen as unique individuals and “whole persons,” not only as diseases or cases. Therefore, physicians’ focus on death as a purely physiologic event that needs to be “fought” with the aid of biomedical technology often results in patients and physicians not being “on the same page” with regards to the goals of treatment toward the end of life.

Patients and physicians may look to complementary and alternative medicine (CAM) as adjuncts to conventional therapies at the end of life. It has been estimated that among adult cancer patients participating in clinical trials, 63% used at least one complementary therapy and 60% to 70% of hospices offer complementary therapy services.

This article focuses on three domains of CAM as they might be applicable to palliative and end-of-life care. First discussed are herbal medi-
cines, as they are the most commonly used modality of CAM. Then we will address the growing evidence base for the efficacy of massage therapy in reducing pain and distress. Finally, the role of animal-assisted therapy at the end of life is discussed. Animal-assisted therapy is not traditionally thought of as a complementary medicine modality; however, it has been used successfully to improve mood, reduce pain, and alleviate loneliness in certain populations.

**HERBAL MEDICINES**

For centuries, herbal medicines were the primary source of medical treatment for the world’s population. Currently, the use of herbal supplements in the US is exceedingly common and has been steadily increasing.

It was estimated that in 1997, American consumers spent $5.1 billion on herbal medicines and more people visited alternative medicine practitioners than primary care physicians. The use of herbal supplements may be even higher in certain populations, such as cancer patients and cancer survivors. In 2008, the prevalence of nutritional supplements or vitamin use among a sample of 4,139 cancer survivors was 40.1%. The use of herbal supplements may be even higher in certain populations, such as cancer patients and cancer survivors. In 2008, the prevalence of nutritional supplements or vitamin use among a sample of 4,139 cancer survivors was 40.1%.

Many herbal medications contain bioactive compounds that can be helpful in the treatment of multiple medical conditions. Also, multiple commonly used medications were developed from plant compounds. For example, the antiarrhythmic medication digitalis was purified from the foxglove flower; aspirin from the willow tree; morphine from opium poppy; and vincristine from rosy periwinkle.

However, the increasing popularity of over-the-counter (OTC) herbal preparations presents a unique set of problems, such as toxicities due to contamination, and interactions with mainstream medications. Furthermore, patients’ reluctance to disclose their use of herbal supplements to their physicians or pharmacists increases their risk for herb-drug interactions.

**DRUG-HERB INTERACTIONS**

As an illustration of the complexity of potential interactions and its relevance to psychiatry, it is useful to focus on the pharmacokinetic and pharmacodynamic properties of the commonly used herbal antidepressant St. John’s wort.

Due to its common use, multiple interactions with other pharmacological compounds have been uncovered and reported. Of particular concern are the potentially lethal pharmacokinetic interactions of St. John’s wort with the anticoagulant warfarin; the antiarrhythmic medication digoxin; the immunosuppressant cyclosporine; and the protease inhibitor indinavir.

The likely mechanism by which St. John’s wort lowers the plasma levels of these medications is through the induction of hepatic p450 enzymes. Additionally, St. John’s wort interacts pharmacodynamically with serotoninergic compounds. One of its components acts as a serotonin reuptake inhibitor and therefore can increase the risk of serotonin syndrome when used concomitantly with antidepressant medications.

**CONTAMINATED HERBS**

Another common problem encountered with the use of herbal medicines is contamination. For example, contamination with heavy metals is common in Chinese and Ayurvedic herbal medicine; multiple case reports and case series have described this problem.

Other contaminants can also be found in herbal medicine preparations. Californian officials discovered that 7% of the 251 products they tested contained undeclared pharmaceuticals.
such as ephedrine, chlorpheniramine, methyltestosterone, and phenacetin.11 Moreover, contaminations with herbicides, pesticides, bacteria or mycotoxins, and undeclared herbal constituents are well documented and can be life-threatening. In Belgium, traditional Chinese medicines contaminated with plants from the *Aristolochia* species caused an epidemic of subacute interstitial nephropathy with multiple patients requiring kidney transplantation.11

As more research is done into the efficacy and safety of various herbal remedies, some myths are dispelled while new treatments are also emerging. Several herbal therapies were recently shown to be beneficial in randomized controlled trials for symptoms that contribute to significant morbidity for many palliative care patients. Glutamine was shown to be beneficial for mucositis, fish oil for cachexia, and milk thistle for hepatotoxicity.13-16

Considering the uncertain risk-benefit ratio of many herbal supplements, they should be used with caution, especially by patients at the end of life who might be taking multiple conventional medicines, such as chemotherapy, highly active antiretroviral therapy (HAART), immunosuppressants, anti-coagulants, and antiarrhythmics.

Stricter regulation of ingredients, mandated reporting of toxicities and side effects, as well as additional randomized controlled efficacy studies can improve the safety profile of herbal medicines and allow them to be used with more confidence.

**MASSAGE**

According to the 2007 National Health Interview Survey (NHIS), chiropractic manipulation and massage were among the top 10 CAM therapies used by adults and children, with 8.3% of adults and 1% of children reporting they used massage. In a survey of hospice programs, massage was the most common complementary modality offered; 60% of participating hospice agencies reported offering it.4

Massage is theorized to “interrupt the cycles of distress through therapist ‘intentionality’ (presence, communication, and desire to produce a therapeutic response); induction of the relaxation response; increased blood and lymphatic circulation; potentiation of analgesic side effects; decreased inflammation and edema; manual release of muscle spasms; increased endogenous endorphin release; and inducing sensory stimuli that override pain symptoms.”17

Massage therapy includes many different modalities such as Swedish massage, Reiki, and several other modalities less-studied in Western medicine, but which are used across the Mediterranean, India, China, and Southeast Asia.

The physiological basis for the benefits of massage is currently under active investigation. It appears that moderate pressure massage activates the parasympathetic nervous system as measured by heart rate variability changes on EKG, which reflect increased vagal efferent activity after massage.18

A randomized controlled trial of the benefits of massage in women with breast cancer demonstrated that massage helps to lower systolic blood pressure and heart rate, consistent with activation of the parasympathetic nervous system.19 Moreover, massage therapy boosted the immune system by decreasing the radiation therapy-induced deterioration of NK cell activity.19

A preliminary study that compared a single session of massage therapy with light touch control showed that massage causes a large decrease in serum vasopressin, a small decrease in serum cortisol, an increased number of circulating lymphocytes (CD25+, CD 56+, CD4+ and CD8+), and decreased numbers of pro-inflammatory cytokines such as IL-4, IL-5A, IL-10, and IL-13 relative to controls, suggesting a beneficial effect on the immune system.20

A small randomized controlled trial of 39 hematological oncology patients undergoing chemotherapy found that massage therapy significantly reduced serum cortisol levels with associated improvements in symptoms of anxiety and depression.21 However, a comprehensive quantitative review of the literature did not find statistically significant effects of massage on cortisol levels, concluding that other mechanisms, some of which might still need to be discovered, are responsible for the well-documented clinical benefits of massage.22

Clinically, massage therapy and touch were compared to each other in a randomized controlled trial for their ability to improve pain and mood in patients with advanced cancer.23 In this study, 380 randomly assigned participants received up to six treatments over a 3-week period. The massage intervention was performed by a licensed therapist who had at least 6 months of experience treating advanced cancer or hospice patients. In contrast, the control treatment was provided by practitioners without prior knowledge of any type of body...
work and consisted of light and constant pressure, with no side-to-side hand movement.

Both treatment arms showed statistically significant improvements in immediate and sustained pain scores, with massage being statistically but not clinically superior to simple touch for immediate pain scores. Moreover, both groups showed improvement in physical and emotional distress scores, as well as in quality-of-life assessments over the weeks of treatment. Even though this study showed only limited superiority of massage over touch, it supports the overall importance of touch in improving quality of life, mood, and reducing distress in patients with terminal illness.

Meta-analysis of massage therapy attempted to address the question of whether massage therapy can reduce the level of pain, anxiety, and depression in patients receiving palliative oncological care. More than 69 articles were found, but only six studies met sufficient criteria for stringency, with four studies corresponding to evidence level I and two to evidence level III. A total sample of 1,558 adult oncological patients receiving palliative care was analyzed. The patients participating in the different studies mainly received a full body massage, but two of the studies evaluated foot massage and one of the studies only administered a hand massage.

Overall, in this population of patients, massage therapy was shown to provide a statistically significant reduction in the subjectively perceived symptoms of pain, lasting as long as 18 hours after the completion of massage. Massage also helped to reduce symptoms of anxiety and depression, especially in socially isolated patients. No negative side effects of massage therapy were identified in the six main articles analyzed.

**ANIMAL-ASSISTED THERAPY**

Animal-assisted therapy (AAT) is defined as a goal-directed intervention between a human and a trained therapy animal that draws from this human-animal bond, designed to promote improvement in human physical, social, emotional, and cognitive functions.

There is a growing appreciation of the healing properties of the human-animal bond. Studies have demonstrated that when compared with non-owners, pet owners are often better able to tolerate stressful situations, as evidenced by a lowered heart rate and systolic and diastolic blood pressures when engaged in mental arithmetic tasks. Other data have shown that the rates of depression among those with AIDS is lower in pet owners compared with non-owners.

Over the past several decades, the benefits of the human-animal bond have been recognized not only in pet ownership, but also with transient interactions between humans and animals. Odendaal found a significant decrease in blood pressure along with an increase in blood levels of oxytocin, beta-endorphin, prolactin, and dopamine after just 5 to 24 minutes of positive interaction with a dog.

Although there has been little research on the direct effects that AAT has specifically on end-of-life care, the effects of AAT on various domains that are significant in palliative care patients, such as pain, social isolation, stress, and anxiety, have been addressed in the AAT literature with other patient populations.

A large study looking specifically at the effects of AAT on an outpatient pain management clinic population found that adults with chronic pain who received brief therapy dog visits had significantly lower reports of pain and emotional distress as compared with those who did not visit with a therapy dog. Similar results have been observed among children whose perceived pain was significantly reduced when they participated in AAT after surgery.

Social isolation and loneliness are common end-of-life issues. AAT has been shown to decrease loneliness and facilitate social interactions among certain populations. Specifically, in a study among elderly residents of long-term care facilities, AAT was shown to be effective in reducing the burden of loneliness among elderly adults.

In acute-care settings, it has been observed that AAT serves to increase social interactions with both patients and families. Additionally, multiple studies have looked at socialization among those with dementia and found that AAT increases social behavior and decreases agitation among these individuals.

Alleviating stress and anxiety through both pharmacologic and non-pharmacologic methods at the end of life is a common practice among palliative care patients and physicians.
Several studies have shown a reduction in stress and anxiety in response to AAT, suggesting that AAT could offer an alternative to some of the more traditional pharmacological and nonpharmacological methods of anxiety reduction. Among hospitalized psychiatric patients, AAT lessened patients’ anxiety to a significant degree compared with routine therapeutic recreation.35

AAT in patients hospitalized with heart failure resulted in lower levels of stress hormones, epinephrine, and norepinephrine, as well as lower levels of anxiety compared with control groups.36 Additional studies have demonstrated a reduction in state anxiety among non-clinical individuals who may or may not have pets, which occurs simply from petting animals.37, 38

Johnson et al write, “AAT meets the National Institute of Health (NIH) definition of Mind-Body Intervention CAM techniques as a process that may facilitate the mind’s capacity to affect bodily function and symptoms.”39 Indeed, research over the years has demonstrated the physiological and psychosocial benefits of human-animal interactions among both medical and psychiatric patients. Although AAT with end-of-life patients remains underrepresented in the literature, issues that are common to this and other patient populations have been successfully addressed with AAT.

CONCLUSION

As psychiatrists, we are aware that a choice of medication, as well as issues of compliance, are often very personal and carry significant transferrable component that is often indicative of the quality of therapeutic relationship. As such, the fact that more patients are currently seeing alternative medicine practitioners than primary care providers could be a sign of their dissatisfaction with the quality of their relationship with allopathic practitioners.6

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