



Psychoneuroimmunology

Part II: Mind-Body Interventions

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Integrative therapies, commonly referred to as complementary and alternative medicine (CAM), are becoming increasingly popular. Oncology nurses are becoming more mindful of patients' interest in and use of CAM, while also recognizing the value of incorporating such interventions into patient care. Inherent to many integrative therapies is the notion of holism and the connection between mind, body, and spirit. The scientific field of psychoneuroimmunology (PNI) provides an explanation of why mind-body therapies can improve psychological and physical functioning, quality of life, and perhaps disease-related outcomes.

This article is the second part of a two-part series about PNI. The first article, which was published in the May/June issue of the *Clinical Journal of Oncology Nursing*, provided a detailed overview of the physiology of PNI. This installment will focus on various integrative therapies that are based on the principles of PNI. It will discuss four general categories of mind-body interventions: sensory, cognitive, expressive, and physical (see Figure 1). In addition, examples of therapies that overlap categories will be provided, as well as a discussion of the limitations associated with the PNI framework.

Sensory Interventions

Of all the different kinds of integrative therapies, sensory interventions represent the most natural fit with nursing practice and are the easiest to incorporate into everyday patient care. The therapeutic value of sensory interventions is illuminated through understanding basic neuroscience and PNI. Stimulation of the five major senses triggers a cascade of bidirectional physiologic activities: Cranial nerves (CNs) play roles in in-

Sensory

Smell (e.g., aromatherapy)
Sight (e.g., colors, visual images)
Taste (e.g., favorite foods)
Hearing (e.g., music, sounds of nature, calming or uplifting words or voices)
Touch (e.g., massage of the back, feet, hands, scalp)

Cognitive

Meditation
Guided imagery
Visualization
Hypnosis
Autogenic training
Humor
Cognitive restructuring and reframing

Expressive

Expressive writing, journaling
Art therapy (e.g., drama, creativity)
Music therapy (e.g., singing, playing an instrument, composing)
Support groups, counseling, and psychotherapy

Physical

Physical exercise
Dance
Yoga
T'ai chi
Progressive muscle relaxation

FIGURE 1. MIND-BODY INTERVENTIONS CATEGORIZED BY TYPE OF INTERVENTION

terventions of smell (CN I), sight (CN II), taste (CN V), and hearing (CN VIII); peripheral nerves are central to touch interventions.

Smell: Aromatherapy has become quite popular in recent years. Little scientific research has studied aromatherapy, but understanding of PNI anatomy and physiology supports anecdotal evidence of its effectiveness. The olfactory nerve (i.e., CN I) is embedded in the brain and has direct connec-

tions to limbic structures, particularly the hippocampus, which plays key roles in emotion and memory (Bloom & Lazerson, 1988; Guyton, 1991). Therefore, certain smells may evoke not only emotional and physical reactions, but also memories of other times and places. For example, the smell of freshly baked apple pie can bring someone back to his or her grandmother's kitchen, or the smell of a balsam fir in July can invoke feelings and images of winter and holiday memories.

Scents that have recognized therapeutic benefits with relevance to oncology nursing include lavender for anxiety, insomnia, and nausea; mandarin for indigestion; chamomile for anxiety, nausea, and pain; peppermint for nausea, indigestion, fatigue, and headache; spearmint for hiccoughs, flatulence, and nausea; patchouli for nausea, abdominal pain, and diarrhea; ginger for anorexia, nausea, and abdominal cramps; and eucalyptus for respiratory congestion (Buckle, 1999; Lawless, 1995). These scents are available as highly concentrated essential oils. Just a few drops of an essential oil may provide therapeutic benefit; however, large quantities can be toxic to mucous membranes and skin.

Essential oils can be diluted with or added to skin lotions and body oils for direct application to skin, allowing for inhalation of scents during and after application. Warm or cool compresses soaked with oil-laced water are easy to use. Essential oil drops also may be added to bath water and shampoos. Vaporization allows scents to permeate rooms. Aromatic diffusers, oil burners, and light bulb rings are effective means of vaporization but

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