

# State of the Science: Hot Flashes and Cancer, Part 2: Management and Future Directions

Janet S. Carpenter, PhD, RN

**Purpose/Objectives:** To critically evaluate and synthesize intervention research related to hot flashes in the context of cancer and to identify implications and future directions for policy, research, and practice.

**Data Sources:** Published, peer-reviewed articles and textbooks; editorials; and computerized databases.

**Data Synthesis:** Although a variety of pharmacologic and nonpharmacologic treatments are available, they may not be appropriate or effective for all individuals.

**Conclusions:** The large and diverse evidence base and current national attention on hot flash treatment highlight the importance of the symptom to healthcare professionals, including oncology nurses.

**Implications for Nursing:** Using existing research to understand, assess, and manage hot flashes in the context of cancer can prevent patient discomfort and improve the delivery of evidence-based care.

## Key Points . . .

- ▶ A variety of pharmacologic and nonpharmacologic interventions for hot flashes have been studied, primarily in terms of their effectiveness in reducing reported hot flash frequency and severity.
- ▶ Evidence-based treatment of hot flashes depends on careful application of existing research and continued monitoring of emerging evidence.

Part two of this state-of-the-science review focuses on two topics. First, research on pharmacologic and nonpharmacologic interventions is reviewed. Second, implications and future directions for research, policy, and practice are described. Similar to Part 1 (see page 959), much of the information presented is specific to cancer. However, data from healthy populations of men and women also are discussed.

## Interventions

Pharmacologic and nonpharmacologic treatments for hot flashes are reviewed here and summarized in Tables 1 and 2. Although an exhaustive review was attempted, additional reviews by nationally known scientists will be forthcoming in peer-reviewed journals as a result of the 2005 National Institute on Aging conference on the management of menopause-related symptoms. In addition, several existing reviews are acknowledged (Barton & Loprinzi, 2004; Barton, Loprinzi, & Gostout, 2002; Carpenter, 2000; Clemons, Clamp, & Anderson, 2002; Holzbeierlein, Castle, & Thrasher, 2004; North American Menopause Society, 2004).

Most of the studies reviewed in this article are limited in two ways. First, most studies focused on healthy women or women with breast cancer. Findings from healthy women may not generalize to women with breast cancer or other populations because of differences in the underlying etiology of hot flashes (Moyad, 2002). In addition, although hot flashes in the groups appear to be physiologically similar (Carpenter, Gilchrist, Chen, Gautam, & Freedman, 2004), the higher frequency and severity of hot flashes experienced in breast cancer survivors (Carpenter, Johnson, Wagner, &

Andrykowski, 2002; Harris, Remington, Trentham-Dietz, Allen, & Newcomb, 2002) may require more intensive therapies. Thus, in general, additional testing in more diverse groups, with attention to gender effects, is warranted.

A second limitation of existing studies is that they have not differentiated the perceived impact of interventions from the physiologic effects. In most studies, hot flash frequency was measured only subjectively using self-reports without objective measurement. Although self-reports provide valuable information about whether subjects perceive an intervention to be effective, self-reports do not provide any evidence of physiologic effects. Changes in self-reports are not necessarily synonymous with physiologic effect. For example, women may report fewer hot flashes over time, making it appear as though hot flashes are decreasing when, in fact, such reporting changes may be caused by intervention expectancy effects, memory recall biases, or personal characteristics such as mood and not by a true decrease in the physiologic occurrence of the symptom (Carpenter, Azzouz, Monahan, Storniolo, & Ridner, in press; Pedhazur & Schmelkin, 1991). Furthermore, the inaccuracies of self-reported hot flash frequency have been

---

*Janet S. Carpenter, PhD, RN, is an associate professor in the School of Nursing at Indiana University in Indianapolis. As a recipient of the State-of-the-Science Award, funded by the American Cancer Society and Oncology Nursing Society, Carpenter presented this article at the Eighth National Conference on Cancer Nursing Research in February 2005. (Submitted January 2005. Accepted for publication March 16, 2005.) (Mention of specific products and opinions related to those products do not indicate or imply endorsement by the Oncology Nursing Forum or the Oncology Nursing Society.)*

Digital Object Identifier: 10.1188/05.ONF.969-978