
CHAPTER 1

Introduction

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Overview

The very term *breast cancer* sends a message of fear to many, if not all, women. With an estimated 207,090 new cases of invasive breast cancer and an additional 54,010 cases of in situ breast cancer diagnosed in 2010 (American Cancer Society [ACS], 2010), it is not surprising that women and their loved ones fear the disease. Unfortunately, an estimated 40,230 women would die from breast cancer in 2010 (ACS, 2010). Most people know someone who has been affected by the diagnosis. Excluding skin cancer, breast cancer is the most common cancer among U.S. women, accounting for one out of every three cancers diagnosed in women (ACS, 2009).

The cultural and psychological significance of the breast in modern society, in addition to the large number of people affected by the disease, may explain much of the fear associated with the diagnosis. The female breast plays a significant role in nurturing and motherhood. Symbolically, it often is associated with femininity and sexuality. Threats to the health of the breast potentially influence a woman's perceptions of her body and her role in society.

Although breast cancer primarily affects women, an estimated 1,970 men are diagnosed each year. This accounts for about 1% of all cases of breast cancer diagnosed (ACS, 2010). The needs of this special population cannot be ignored (Al-Haddad, 2010). Although this text focuses on breast cancer in women with regard to diagnostic, surgical, and adjuvant therapy, many of the strategies used to treat male breast cancer are similar to those used in women. For many men diagnosed with breast cancer, the psychosocial issues are complex and require much sensitivity and care from oncology health professionals (Onami, Ozaki, Mortimer, & Pal, 2010).

Every October, numerous groups promote breast cancer awareness, including Susan G. Komen for the Cure and ACS, as well as professional societies and local healthcare institutions. The color pink is universally associated with breast cancer, and during these special awareness programs, constant reminders are set against a background of pink about

the need for improved detection and treatment of the disease. Many breast cancer survivors have become activists and advocates for other women to prevent the disease and promote early detection.

The impact of this advocacy and promotion of breast cancer awareness should not be underestimated. During the 1980s and 1990s, breast cancer advocates in the United States rallied around the Mammography Quality Standards Act and for expansion of the Breast and Cervical Cancer Early Detection Program (Braun, 2003). Both of these acts, along with significant increases in federal funding for breast cancer research (from \$81 million to more than \$400 million in the 1990s), dramatically changed the screening and treatment of breast cancer in the United States.

Public awareness and desire to decrease the morbidity and mortality associated with breast cancer is significant. Since Congress first enacted the breast cancer postage stamp program in 1997, the National Cancer Institute (NCI) has received more than \$35 million from stamp sales, which funded more than 50 grants and one clinical trial (Savage, 2007). The stamp not only heightens public awareness of breast cancer but also provides significant funding for a variety of research programs.

This awareness of breast cancer has dramatically changed the outlook and treatment for those diagnosed with breast cancer. In the past three decades, thousands of women have participated in awareness races, raised money for research and screening, undergone screening, and enrolled in clinical trials with the hope of improving the outcomes for those diagnosed with breast cancer.

Historical Perspectives

An examination of the history of breast cancer treatment enables women and healthcare providers to understand how much progress has been made, yet it also leaves questions about what still needs to be done. As early as 400 BC, Hip-

pocrates speculated on the systemic nature of the disease (Foster, 2003). Galen (AD 130–200) believed breast cancer to be a local-regional disease requiring complete excision for cure. The early Romans performed a type of mastectomy that included removal of the pectoralis muscle. Throughout the Middle Ages and Renaissance periods, crude types of mastectomies often were attempted to potentially eradicate disease. These early physicians initiated the debate about whether breast cancer is a systemic disease, local-regional disease, or both.

During the middle of the 18th century, William Hunter identified and described the importance of the lymphatic system in the spread of cancer (Foster, 2003). Surgical techniques greatly improved in the mid-19th century with the introduction of general anesthetics and more antiseptic techniques. In the late 19th century, Thomas Beatson of Scotland reported that oophorectomy resulted in the regression of advanced breast cancer. This early finding was just the beginning of hormonal manipulation as an effective adjuvant therapy in the treatment of breast cancer.

Although considered controversial in his time, William Halsted believed that breast cancer was a local-regional disease and is well known for promoting the Halsted radical mastectomy, which quickly became the standard of care for more than the first half of the 20th century. This radical surgical procedure often was combined with radiation therapy, which was also an emerging science at that time (Foster, 2003). Surgical treatment typically involved a “one-step procedure” in which a woman undergoing a biopsy with general anesthesia also would consent to an immediate mastectomy if the frozen section showed malignancy. It was not until the woman woke up that she would know the actual diagnosis and extent of surgery. Women typically were offered little choice in treatment.

The middle of the 20th century brought about a push toward clinical trials and decreasing the morbidity and mortality associated with breast cancer. These trials have had an enormous impact on breast cancer treatment and have led to the view that breast cancer is systemic and not just a local-regional disease. Because of these trials, lumpectomy followed by radiation therapy is now an appropriate local-regional control strategy for many women. The one-step biopsy procedure was gradually eliminated as biopsy techniques became more refined and women could make informed decisions about local-regional management. Adjuvant therapy trials have greatly changed systemic treatment for breast cancer. The National Surgical Adjuvant Breast and Bowel Project (NSABP) has enrolled more than 40,000 women in more than 30 trials (Foster, 2003).

In the 1970s, the concept of screening for early breast cancer gained more acceptance. Women were encouraged to practice breast self-examination. Today the push is toward breast health awareness (ACS, 2009). Mammography gradually became more readily available and more sensitive in detecting

early malignancies. Screening continues to be refined with widespread implementation of digital mammography, and breast magnetic resonance imaging (MRI) is showing promise as a detection tool in some high-risk groups. Although more women are engaged in screening programs, much more work remains to be done. If adequate breast cancer screening and care for all women were readily available, an estimated 20% fewer women would die of the disease each year. If 40,000 women are dying of breast cancer each year, 8,000 lives could be saved (Vanchieri, 2007).

Prevention of breast cancer is not yet a reality, although it may eventually be one. The NSABP P-1 trial clearly demonstrated that tamoxifen may be beneficial in some high-risk women to reduce the risk of, delay the development of, or prevent breast cancer. Genetic testing is now readily available for two hereditary breast cancer susceptibility genes (*BRCA1* and *BRCA2*). Women with a known mutation can be offered prophylactic surgeries to prevent the development of breast cancer. Large-scale epidemiologic studies continue. For example, the Sister Study will follow 50,000 women for at least 10 years who have a biologic sister who was diagnosed with breast cancer and will collect information about genes, lifestyle, and environmental factors that may cause breast cancer (“First Sister Study Results,” 2009; “The Sister Study,” 2010). Enrollment for the Sister Study was completed on March 31, 2009.

Gene expression analysis has led to the identification of molecularly defined subtypes of breast cancer that have distinct biologic features, clinical outcomes, and responses to chemotherapy. Personalized treatment strategies are now being developed based on an individual’s tumor characteristics. A woman’s response to chemotherapy is influenced not only by the tumor’s genetic characteristics but also by inherited variations in genes that affect a woman’s ability to absorb, metabolize, and eliminate drugs (Qureshi & Qureshi, 2008). Personalized medicine is a reality in breast cancer treatment, and it is anticipated that future developments will ultimately lead to much more effective treatment and decreases in mortality.

Social movements have influenced the treatment of breast cancer as well. Prior to the 1970s, breast cancer was considered a stigma. It was not discussed. Then, the diagnosis of breast cancer in several prominent women, including Shirley Temple Black, Betty Ford, Happy Rockefeller, and Betty Rollin, changed public opinion about the disease in a relatively short period of time. These women used their popularity to encourage other women to engage in early detection practices and to be open about their diagnosis. They increased public awareness of the disease and, along with many other women, challenged the breast cancer practices of the time (including the Halsted radical mastectomy) and lobbied for increased accountability and accessibility in mammography (Kolker, 2004). These efforts ultimately led to significant federal funding for more research related to breast cancer.

The trend toward shorter hospitalization is another social movement that has dramatically affected breast cancer treatment. Twenty-five years ago, women would recover for 10 days to two weeks in the hospital. Today, for many women, same-day or one-night stays are the norm after surgical management of the disease. These women still go home with physical limitations and emotional concerns, but often with much less support from the healthcare team. This creates new challenges for patients and their families.

Consumerism also has affected breast cancer (Klawiter, 2004). Two decades ago, few resources were available to women, other than ACS and its “Reach to Recovery” program. Minimal printed resources existed, and the Internet had not been developed yet. Women faced the disease and its treatment often with a limited understanding of the pathophysiology of the disease and its treatment. Today, society promotes the concept that women should be active partners in decisions regarding treatment. NCI and numerous other organizations encourage women to ask questions, and they provide educational resources in many formats.

Epidemiologic Perspectives

Some epidemiologic trends in breast cancer have occurred that merit notice. Breast cancer risk increases with age. During 2002–2006, 95% of the new diagnoses and 97% of breast cancer deaths occurred in women age 40 and older (ACS, 2009). During this same time period, the median age at diagnosis was 61.

Many women believe that breast cancer has become increasingly more common. Since 1975, three basic incidence trends have occurred (ACS, 2009). From 1975 to 1980, the incidence was relatively constant. Between 1980 and 1987, the incidence increased by 4% per year. This increased incidence is attributed to more widespread use of mammography and the detection of nonpalpable lesions. Between 1987 and 1994, the incidence was essentially constant. Between 1994 and 1999, incidence rates increased by 1.6% per year. Epidemiologists speculate that this increase in incidence is related to changing reproductive patterns, including delayed child-bearing and fewer pregnancies. Between 1999 and 2006, however, incidence rates decreased by 2% per year. This decrease is attributed to decreased use of hormone replacement therapy following the publication of the results of the Women’s Health Initiative randomized trial in 2002, as well as a decrease in mammography screening (thus, detecting fewer cancers earlier) (ACS, 2009). Despite the increasing incidence, mortality rates are decreasing. Between 1990 and 2006, the mortality rate decreased by 3.2% annually (ACS, 2009). Recent estimates suggest that at least 2.3 million women are alive with a diagnosis of breast cancer (ACS, 2009). Long-term survival rates continue to improve. Currently, of all the women diagnosed, 89% are alive 5 years after the diagnosis; 82% are alive

10 years after the diagnosis; 75% are alive after 15 years; and after 20 years, 63% are still alive (ACS, 2009).

Clinical Perspectives

Women understandably worry about their risk for developing breast cancer. Understanding this concept is a challenge both for women to comprehend and for healthcare professionals to communicate. Multiple means are available to express risk. Healthcare providers are encouraged to find a risk assessment that correctly conveys risk and is appropriate for the woman. This usually includes a combination of figures including relative, absolute, and, in some cases, attributable risk. The primary reason for conducting a risk assessment is to use it to guide decisions about screening.

The Human Genome Project has greatly changed risk assessment processes, especially in the area of breast cancer risk. Approximately 10% of all breast cancers likely have a hereditary component (Daly et al., 2006). The identification of women with hereditary risk is an ever-emerging role in oncology. Once identified through risk assessment, these women need comprehensive, balanced counseling so that they can make an informed decision about genetic testing. Genetic testing has major ramifications for both the individual tested and for other relatives. For those who test positive for a known mutation, difficult choices can arise regarding prevention, including the possibility of prophylactic surgery.

For all women, the risk assessment guides screening recommendations. Multiple screening recommendations are available from numerous organizations. These recommendations usually include some combination of breast self-examination, a professional clinical breast examination, and mammography. For women with significant risk, other modalities such as MRI may be added, as well as more frequent screening. When making screening recommendations, healthcare providers need to inform women about why a particular guideline is being utilized, as well as the potential risks, benefits, and limitations associated with a particular screening modality.

In an ideal world, all breast cancer would be prevented. However, limited strategies currently exist that are routinely used in the prevention of breast cancer. All women should be counseled about the benefits of a low-fat diet, weight control, and regular exercise. The role of exogenous hormone use in the development of breast cancer is still poorly understood. Tamoxifen and raloxifene, however, have shown some promise for the prevention of breast cancer (ACS, 2009). Clearly, more chemoprevention trials are needed to identify agents, the ideal age at which to begin taking them, and the best administration schedules to ultimately offer women some choice for the prevention of breast cancer. For women with an identified hereditary predisposition for developing breast cancer, recommended prevention measures may include prophylactic mastectomy and oophorectomy, but both of these surger-

ies are not without significant physiologic and psychological consequences.

The diagnostic process for evaluating any breast abnormality can be terrorizing for women, thereby necessitating the need for compassionate support and honest, comprehensive, understandable education. On a positive note, biopsy techniques continue to become less invasive. For most, the workup will result in a benign finding. These women usually feel a great sense of relief and ideally a heightened awareness of the importance of the early detection of breast cancer. For those with a positive finding, they are suddenly thrown into an unfamiliar and potentially frightening arena of health care. Being sensitive to the needs of these women is critical to promote their overall adjustment to the diagnosis.

Treatment for breast cancer has changed greatly and is continually evolving. Mastectomy is no longer the only choice for many women. The Halsted radical mastectomy is no longer the norm. For many women, breast-sparing procedures are more than adequate treatment. Lymph node sampling techniques have improved, especially with sentinel lymph node procedures, with the potential benefit of reducing lymphedema and other complications. Women, however, must make often complicated decisions about which treatment (or treatments) to undergo, and this decision-making process can be extremely stressful for some, especially for those with limited abilities to understand complex medical information and terminology.

Breast restoration also has improved dramatically. Women have many options in breast and reconstructive surgery. Patients with breast cancer need much guidance, support, and education as they make choices about reconstructive surgery. Although often forgotten, prosthetics can be an appropriate and satisfactory choice for women. They should not be considered as a “second-rate” choice or reserved simply for women who are not good surgical candidates. The choices in prosthetics are numerous. Similarly, bras, undergarments, and swimsuits no longer need to be ugly, and all women, regardless of their breast restoration choices, should be offered access to these items. Women need to be counseled and encouraged to learn about these different options before making a decision about breast restoration.

The past decades have demonstrated great strides in understanding the pathology of breast cancer and how it influences treatment. Two decades ago, systemic treatment was limited to a few chemotherapeutic agents and tamoxifen combined with surgery. Treatment now includes multiple chemotherapeutic agents, breast-sparing surgery, immunomodulating agents, radiation therapy, and hormonal manipulation. Each of these areas continues to expand, and many active research trials are currently available. Most recently, targeted therapies are becoming available for those with some types of breast cancer.

These advances in treatment, however, have not come without a price. The acute toxicities associated with surgery and adjuvant therapy can be significant. Many research efforts are ongoing to determine how to more accurately as-

sess, prevent, and manage these side effects. In addition to short-term side effects, many breast cancer survivors must cope with long-term consequences. The pool of survivors is steadily increasing, and with longer survival rates comes the increased possibility of long-term complications. Most notably, the past decade has seen a significant number of survivors coping with the consequences of early menopause, osteoporosis, and mental changes. Addressing the needs of this patient population through tertiary prevention practices is an ever-expanding role for nurses.

Breast cancer can be an overwhelming diagnosis for both patients and those close to them. Many women cope with the diagnosis and ultimately may have a renewed sense of purpose in life. For others, it can be devastating. The psychological ramifications of the diagnosis are significant. It forces women to confront mortality. The body image changes that result from surgery and related treatments serve as a constant reminder of the diagnosis. Role changes during treatment disrupt many family routines. After treatment, women need to adjust to a new normalcy.

Women worry about hereditary susceptibility and whether a child has inherited an increased risk for developing the disease. Genetic testing is becoming increasingly available. Although genetic testing enables women to better understand their risks and choices available to manage the risk, it also brings about intense psychosocial reactions and ramifications.

The diagnosis of breast cancer is accompanied by many unknowns, including prognostic factors, treatment issues, and how family and friends will react to the diagnosis. These unknowns contribute to stress with the diagnosis. The psychological care of these women and their families requires ongoing intervention by healthcare providers. For women whose breast cancer cannot be cured and who will ultimately die from the disease, there is an ongoing need to recognize and implement palliative care interventions in a timely fashion.

Research in breast cancer and its treatment continues. Researchers are actively looking for ways to detect breast cancer as early as possible. Much effort is being made to find effective and tolerable prevention strategies. Genetic markers continue to be identified to better stratify risk. Management of the long-term complications of surgery and treatment continues to provide challenges to healthcare providers. Women need to continue to be offered clinical trials to build an evidence-based practice for the management of breast cancer.

Conclusion

This book seeks to address issues related to cancer control, breast cancer treatment, psychosocial concerns, and the management of complications related to cancer and its treatment in depth. Many issues in breast cancer are controversial. Patients and healthcare providers need to consider all issues, and then each woman needs to make choices that are consis-

tent with her value system and place in life. In some cases, no single correct answer exists. New questions and challenges will continue to arise.

Many resources are available to healthcare providers who care for women with breast cancer. Healthcare providers also need to continually be aware of the recommendations and position statements of respected professional organizations. The Oncology Nursing Society has published several position statements on topics that are especially relevant for the care of women with breast cancer. These include breast cancer screening, cancer predisposition genetic testing and risk assessment counseling, rehabilitation of people with cancer, and prevention and early detection of cancer in the United States (see www.ons.org/publications/positions).

For many women diagnosed with breast cancer, nurses truly make an enormous difference in how they cope with the treatment and its associated complications. Different needs and concerns accompany each phase of the breast cancer trajectory. Nurses are challenged to consider the history of breast cancer treatment and to provide information and care in a way that promotes health, hope, and well-being for the women and families affected by the diagnosis of breast cancer.

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