One Disease, Two Lives: Exploring the Treatment of Breast Cancer During Pregnancy

Alexa G. Visco, BA, BSN, RN, Lara C. Meyer, BA, BSN, RN, Shuo Xi, BA, BSN, RN, and Carlton G. Brown, RN, PhD, AOCN®

Because breast cancer risk increases with age and women in the United States continue to delay childbirth, the incidence of breast cancer during pregnancy will rise. About 10% of patients younger than age 40 diagnosed with breast cancer are pregnant. Historically, labor-delivery and oncology, the two spheres of clinical care, rarely overlapped. However, breast cancer occurs in about 1 in 3,000 pregnancies. Case studies suggest that the administration of chemotherapeutic agents during the second and third trimesters may be safe for the mother and fetus. Three specific case studies of pregnant women with cancer who received treatment are presented to identify the issues of cancer during pregnancy. Outcomes of infants who received chemotherapy in utero and associated nursing implications also are explored.

At a Glance

- Caring for pregnant women with breast cancer differs from treating nonpregnant women.
- Case reports on the use of chemotherapy during pregnancy have shown varied maternal and fetal outcomes depending on trimester at time of administration.
- Nursing competency spanning the continuum of care is imperative for pregnant women with breast cancer.

Women rarely have breast cancer and are pregnant at the same time. Obstetrics and oncology are separate healthcare services, and nurses working in one area usually do not have expertise in the other. However, at least 10% of women with breast cancer who are younger than age 40 will be pregnant at diagnosis (Woo, Yu, & Hurd, 2003). As women in the United States continue to delay childbirth until age 30 or older, the incidence of breast cancer during pregnancy will increase (Psyrri & Burtness, 2005). Nurses in oncology as well as obstetrics should be familiar with treatments for breast cancer during pregnancy and understand their responsibilities when caring for gravid women with breast cancer. This article presents current treatment in breast cancer during pregnancy and illustrates issues faced by this population with three published case studies of women treated during pregnancy (De Santis, Lucchesi, De Carolis, Ferrazani, & Caruso, 2000; Giannakopoulou et al., 2000; Sekar & Stone, 2007).

In addition, fetal outcomes of treatment and associated nursing implications will be discussed.

Background

Almost 6,000,000 pregnancies occur in the United States each year, and about 4,058,000 result in birth (American Pregnancy Association, 2009). Cancer is the second most common cause of death in women of reproductive age, accounting for about 33% of maternal deaths during gestation (Keleher et al., 2002). Breast cancer is the most common cancer in pregnant and postpartum women, occurring in about 1 in 3,000 pregnancies, with the average pregnant woman aged 32–38 years at diagnosis (National Cancer Institute [NCI], 2008). Maternal age at birth continues to rise, with the average age of a primigravida increasing from 21.4 years in 1970 to almost 25 years in 2000 (Matthews & Hamilton, 2002). In addition, the rate of live births per 1,000 women aged 35–40 years increased from 2.1 in 1970 to 8.5 in 1999 (National Center for Health Statistics, 2008).

The risk for developing breast cancer increases with age (Centers for Disease Control and Prevention, 2007). Much of the...
long-term increase in breast cancer incidence is attributed to changes in reproductive patterns, such as having children later in life and having fewer children (American Cancer Society [ACS], 2008). As the rate of women delaying childbirth in the United States increases, the incidence of breast cancer during pregnancy also is expected to rise.

Cancer Therapy and Pregnancy

In caring for pregnant women with cancer, treatment decisions are made after considering options available for the stage and biologic characteristics of the disease (ACS, 2008). Traditionally, women with breast cancer undergo surgery, such as lumpectomy, mastectomy, or radical mastectomy. Surgery often is combined with other treatments, including radiation therapy, chemotherapy, hormone therapy, and biologic therapy (ACS).

Surgical intervention is the recommended primary treatment for pregnant women with breast cancer (NCI, 2008). Radiation should be avoided during pregnancy to protect the fetus from potentially harmful scatter exposure associated with radiation treatments (Kal & Struikmans, 2005). Modified radical mastectomy often is the treatment of choice (ACS, 2008). For some, lumpectomy with postpartum radiation therapy may be attempted to conserve breast tissue (Gwyn & Theriault, 2001). Neoadjuvant chemotherapy treatment should not be administered during the first trimester; however, chemotherapy may be given during the second and third trimester, providing treatment options for pregnant women with cancer without definite neonatal harm (Cardonick & Iacobucci, 2004).

The stages of pregnancy should be understood before discussing the methods of therapy used in breast cancer treatment (see Table 1). Fetal adverse effects from cytotoxic agents include organ abnormalities, growth restriction, and developmental delay (Espié & Cuvier, 1998). The fetal effects are related to chemotherapy administration and have been reported generally during the first trimester (Espié & Cuvier). Therefore, chemotherapy is contraindicated in the first trimester in all occurrences of breast cancer during pregnancy (NCI, 2008). Because primary growth of fetal organs occurs during the first trimester, cytotoxic agents are considered most teratogenic at that time. In addition, the rapidly dividing cells of a fetus are susceptible to abnormalities when exposed to antineoplastic agents during early stages of pregnancy (Giannakopoulou et al., 2000). The critical first 12 weeks of development, which involves rapid cell division, include the formation of the nervous system, circulatory system, and heart; exposure to teratogens can compromise the formation of these essential components and potentially result in permanent birth defects (Davidson, Ladewig, & London, 2008).

By week 10 of fetal development, neuron replication occurs at a rate of about 250,000 new neurons per minute (Mayo Clinic, 2007). The rapid neural cell division continues as the central nervous system matures throughout the last two trimesters of pregnancy and remains susceptible to teratogens (Mayo Clinic). Despite the vulnerability to teratogens of specific development involving rapid cell division, include the formation of the nervous system, circulatory system, and heart; exposure to teratogens can compromise the formation of these essential components and potentially result in permanent birth defects (Davidson, Ladewig, & London, 2008).

Chemotherapeutic agents that have been administered during pregnancy include CAF (cyclophosphamide, doxorubicin, and 5-fluorouracil) and docetaxel. CAF includes a combination of drugs that are cell cycle–phase nonspecific, broad-spectrum neoplastic agents and is used primarily when a woman presents with advanced breast cancer (Lehne, 2007). In pregnancy associated breast cancer, CAF has been modified from CMF (cyclophosphamide, methotrexate, and 5-fluorouracil). Methotrexate is a folic acid analog, which inhibits the active form of folic acid in the body (Lehne). Folic acid is a key component in neural tube development during pregnancy; therefore, methotrexate is contraindicated in pregnant women because of its antifolate activity and association of fetal malformation and death (Lehne). Doxorubicin is an anthracycline found to be less toxic and, therefore, is more acceptable for use in pregnant women.

Table 1. Major Events of Fetal Development

<table>
<thead>
<tr>
<th>TRIMESTER</th>
<th>WEEKS GESTATION</th>
<th>MAJOR EVENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>First</td>
<td>0–5</td>
<td>Neural tube closes by week 5 (brain and spinal cord), and nervous system continues to mature throughout pregnancy. Circulatory system, heart, gastrointestinal tract, eyes, ears, and limb buds begin to develop.</td>
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<tr>
<td></td>
<td>6–8</td>
<td>Lungs and all essential organs begin to develop. Hair follicles, digits, and facial features begin formation.</td>
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<tr>
<td></td>
<td>9–12</td>
<td>Pancreas, bile ducts, gallbladder, and anus are present. Face forms, limbs elongate, genitalia differentiate, and reproductive system forms. By week 10, neuron replication occurs at a rate of 250,000 new neurons per minute.</td>
</tr>
<tr>
<td>Second</td>
<td>13–19</td>
<td>Hair and lanugo develop, muscle tissue and bones begin to form, liver and pancreas produce fluid secretions, and auditory system establishes.</td>
</tr>
<tr>
<td></td>
<td>20–24</td>
<td>Muscle development increases, eye parts develop, bone marrow begins to make blood cells, lower airways of lungs develop (no surfactant yet), and fat storage begins.</td>
</tr>
<tr>
<td>Third</td>
<td>25–32</td>
<td>Brain develops rapidly; respiratory system developed enough for gas exchange to be possible; fetus begins to store iron, calcium, and phosphorus.</td>
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<tr>
<td></td>
<td>33–40</td>
<td>Body fat increases; fingernails extend beyond fingertips; small breast buds present.</td>
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Note. Based on information from Mayo Clinic, 2007.
Turchi & Villasis, 1988). Compared to the broad spectrum, cell cycle-phase nonspecific qualities of CAF, docetaxel is cell cycle-phase specific (G2) and is used alone or in combination with other drugs (Lehne).

Trastuzumab is a monoclonal antibody that specifically targets HER2 (Lehne, 2007). Trastuzumab can be used in combination with docetaxel as an adjuvant therapy treatment. However, a limited number of case reports have discussed the use of trastuzumab during pregnancy (Watson, 2005). Watson described anhydramnios associated with trastuzumab application until 23 weeks of pregnancy, which was reversible after the drug was discontinued. Labor was induced at 37 weeks, with the child's renal function normal after delivery and regular growth (Watson). Fanale, Uyei, Theriault, Adam, and Thompson (2005) reported continual oligohydramnios during treatment with trastuzumab and vinorelbine at weekly intervals until induction of labor at 35 weeks gestation. Waterson and Graham (2006) described a patient who received two cycles of trastuzumab before discovering that she was pregnant; the pregnancy resulted in a normal vaginal delivery of a healthy baby after exposure to trastuzumab. Bader, Schlembach, Tamussino, Pistauf, and Petru (2007) reported a patient who presented with metastatic breast cancer at 17 weeks gestation. At 26 weeks, a combination of paclitaxel and trastuzumab was given every three weeks. After two cycles of therapy, almost no amniotic fluid was present and fetal growth had stopped. Lung maturation was used, and a caesarean section was carried out at 32 weeks gestation. The preterm born showed signs of bacterial sepsis with hypotension as well as renal and respiratory failure; future development of the child was normal (Bader et al.). Finally, Shrim, Garcia-Bournissen, Maxwell, Farine, and Koren (2007) described a patient with metastatic breast cancer treated with trastuzumab throughout the first 24 weeks of pregnancy. The patient underwent a caesarean section at 37 weeks, resulting in a healthy baby (Shrim et al.).

To reiterate, all chemotherapy agents are contraindicated in pregnant women in the first trimester. In addition, treatment usually should be discontinued at least three weeks before delivery for the mother and fetus to recover from myelosuppression and lower the risk of postpartum infection and hemorrhage (Giacalone, Laffargue, & Béens, 1999). In a 1992 study, Zemlickis et al. compared 21 pregnancies in women who received chemotherapy for cancer over 30 years. The study included a control group matched for maternal age and was composed of women who were not exposed to known teratogens or reproductive risks during pregnancy. Of the 13 women exposed to chemotherapy during the first trimester, five continued their pregnancies to term, two had major infant malformation, four had spontaneous abortions, and four had therapeutic abortions. Of the four women with second-trimester exposure to chemotherapy, two had normal live births, one had a stillbirth, and one had a therapeutic abortion. All four pregnancies exposed to chemotherapy during the third trimester resulted in healthy live births (Zemlickis et al.). The finding suggests that teratogenic effects of chemotherapeutic agents appear to decrease as the pregnancy progresses into the second and third trimesters. The current study suggests the importance of treating breast cancer by stage of pregnancy, considering the timeline of fetal development.

In reviewing data on therapeutic drug agents, the U.S. Food and Drug Administration (FDA) assigns pregnancy category ratings. A rating of A (controlled clinical studies in human pregnancy), B (animal studies show no risk; human data are reassuring), C (human data are lacking; animal studies show positive or were not done), D (human data show risk; benefit may outweigh risk), or X (animal or human data are positive for risk) labels the risk of exposure for a mother and fetus (FDA, 2002; Gwyn, 2005). The ratings also are used by clinicians to weigh the risk of fetal exposure with benefit to the mother’s treatment. In a study reported by Cardonick and Iacobucci (2004), 376 fetuses were exposed to chemotherapy in utero. Most fetuses were exposed after organogenesis (Cardonick & Iacobucci), which primarily occurs in the first trimester (Gwyn). Of the 11 malformations reported, nine occurred when chemotherapy was given in the first trimester. If breast cancer is diagnosed at an early enough stage, chemotherapy treatment may be delayed until later in the pregnancy (Gwyn). Delaying treatment until the second or third trimester can reduce the risk of kidney function (Cardonick & Iacobucci), but it may not be an option in many cases.

Aviles and Neri (2001) reviewed records of 89 women diagnosed with hematologic cancers during pregnancy, with five women and their fetuses dying before any treatment was administered. The children of the remaining 84 patients participated in the exposure study, which examined their physical growth and development, cardiac function, bone marrow, neurologic and psychological functioning, and school records for a median follow-up time of 18.7 years (Aviles & Neri). No cancer or acute leukemia was observed in the 84 patients or in the 12 second-generation children; in addition, the children showed normal learning and education performance with no congenital, neurologic, or psychological abnormalities (Aviles & Neri). Although other long-term chemotherapy exposure studies are available, the data and analysis are not as detailed as in Aviles and Neri’s study (Gwyn, 2005).

The use of case studies in research can offer insight into the potential effectiveness of therapeutic interventions (Burns & Grove, 2005). Yin (1999) noted that case study methods are useful particularly in health services research. Many case studies have been published on breast cancer and pregnancy. The following case studies illustrate safe use of chemotherapeutic agents during pregnancy.

**Reviewed Case Studies**

**Case Study 1**

Sekar and Stone (2007) reported the case of M.W., a 28-year-old primigravida in the second trimester of pregnancy. M.W. presented with a history of left breast infiltrative ductal carcinoma and was treated with radical mastectomy of the left breast and lymphadenectomy, followed by chemotherapy and radiation one year before pregnancy. All cells removed from the lymph nodes were estrogen receptor- and progesterone receptor-negative and HER2-positive (Sekar & Stone), which can be targeted by trastuzumab (Lehne, 2007). Metastases of the brachial plexus and lungs were discovered at 20 weeks gestation; M.W. was started on docetaxel with trastuzumab.
as adjuvant therapy at 23 weeks gestation. The second cycle was administered 21 days later at 26 weeks gestation, and the third dose was administered at 27 weeks gestation. An ultrasound examination performed at 30 weeks gestation revealed growth restriction. The fetus was estimated to be in the fifth percentile, with presence of anhydramnios. The fourth cycle of chemotherapy was delayed until after delivery because of concern for fetal well-being. Betamethasone was administered as a precautionary measure following the discovery of anhydramnios. An elective cesarean delivery for breech presentation was performed at 36 weeks, two days gestation. A male infant weighing 4 lb, 15 oz was delivered, with Apgar scores of 7 and 9. A small amount of clear amniotic fluid was present at delivery. The infant showed no signs of prolonged oligohydramnios; subsequent growth and development of the infant was normal. Therefore, trastuzumab showed a decrease in amniotic fluid volume when used at less than 30 weeks of pregnancy (Watson, 2005).

Case Study 2

De Santis et al. (2000) presented the treatment course of B.K., a 33-year-old patient diagnosed with stage II ductal carcinoma of the breast. Eight of 10 lymph nodes were estrogen receptor-positive and progesterone receptor-negative. B.K. was treated with a modified radical mastectomy and adjuvant chemotherapy of four cycles of epixorubicin followed by four cycles of CMF. B.K. became pregnant less than two years after treatment; however, she was diagnosed with stage IV ductal carcinoma with metastases in the vertebrae, pelvis, and hip at 15 weeks gestation. At 16 weeks gestation, she refused any antitumor treatment. Three weeks later, magnetic resonance imaging (MRI) revealed spinal metastases. Vinorelbine was administered because B.K. was resistant to the anthracyclines. Her condition continued to deteriorate, so docetaxel was administered every three weeks with methylprednisolone. Following three cycles of docetaxel, B.K. delivered a normal female infant at 32 weeks gestation by cesarean section, with Apgar scores of 8 and 9. After delivery, B.K.’s treatment was resumed for an additional three cycles of docetaxel, then changed to one cycle of vinorelbine every two weeks for two years. Follow-up MRIs were negative for metastasis. The infant’s subsequent growth and development was monitored until 20 months and found to be within normal limits.

Docetaxel is a taxane class drug shown to be most active against breast, prostate, and non-small cell lung cancers (National Cancer Institute, 2005). The efficacy of docetaxel as monotherapy for metastatic breast cancer previously treated with anthracyclines or alkylating agents has been well established (Jones et al., 2005). The efficacy of docetaxel monotherapy is similar to or better than paclitaxel (Jones et al., 2005), doxorubicin (Chan et al., 1999), and fluorouracil plus vinorelbine (Bonneterre et al., 2002) and was better than methotrexate plus fluorouracil (Sjoström et al., 1999) or mitomycin plus vinblastine (Nabholtz et al., 1999). Patients usually were premedicated with corticosteroids to minimize fluid retention and hypersensitivity reactions commonly seen with docetaxel. Patients receiving corticosteroids have shown improved survival rates as well as improved quality of life (Piccart et al., 1997).

Information about patients receiving docetaxel monotherapy during pregnancy is limited to four reports and five cases (De Santis et al., 2000; Gainford & Clemons, 2006; Nieto et al., 2006; Potluri, Lewis, & Burton, 2006). All received docetaxel for breast cancer treatment. Four of five patients delivered healthy babies, and the remaining patient delivered a baby with hydrocephalus that was present prior to the administration of docetaxel therapy (De Santis et al.; Gainford & Clemons; Nieto et al.; Potluri et al.). All patients showed symptomatic improvement with no apparent short-term toxicity to mother or child; therefore, docetaxel monotherapy and combination therapy with trastuzumab in pregnant women with locally advanced or metastatic breast cancer showed favorable infant outcomes.

Case Study 3

Giannakopoulou et al. (2000) discussed the case of A.W., a 39-year-old primigravida who presented with infiltrating ductal carcinoma. Without knowing she was pregnant, a modified radical mastectomy was performed, identifying 21 of 23 axillary lymph nodes positive for cancer. A.W. was started on CMF; at the completion of the fifth cycle of CMF therapy four months later, A.W. complained of abdominal distention and discomfort. Ultrasound examination found hepatic metastasis and an enlarged uterus. The fetus measured at about 24 weeks gestation. Considering A.W.’s chemotherapy schema, conception occurred about four weeks before the start of adjuvant chemotherapy treatment. Although A.W. had been experiencing amenorrhea prior to her mastectomy, she did not consider pregnancy because she had attempted to conceive unsuccessfully for 20 years. Cytotoxic agents are considered most harmful during the first trimester of pregnancy, so A.W. and her partner were educated on the risk of exposure; they decided to continue the pregnancy. Against the medical advice of her healthcare providers, A.W. also decided to discontinue chemotherapy (Giannakopoulou et al.). Within six weeks, she experienced severe ascites and edema. Healthcare providers encouraged A.W. to have a cesarean delivery to allow for the continuation of her treatment; however, she refused, wanting to carry the pregnancy full-term. A.W. soon went into spontaneous labor and delivered a 2.2 pound boy, who was in the third percentile of height, weight, and head circumference but appeared normal for a 30-week neonate. Despite the administration of antineoplastic agents during the critical first and second trimesters, the fetus was born healthy, with only a mild malformation of an inguinal hernia. The infant was treated for respiratory distress syndrome type 1, receiving support for two days with no subsequent complications. The infant was discharged following a three-month hospital course; follow-up developmental screening showed normal growth and development up to 22 months. A.W. resumed therapy after delivery, but treatment was unsuccessful; she died eight months later (Giannakopoulou et al.).

A.W.’s pregnancy was not discovered until four months after treatment began. Therefore, the fetus unknowingly was exposed to cytotoxic agents during the first and second trimester of the pregnancy. Although no severe teratogenic effects were observed, nurses should be aware of potential
harm from breast cancer treatments during the first trimester (Giannakopoulou et al., 2000).

Nursing Implications

The pregnant women discussed in this article were diagnosed with advanced stages of cancer, creating issues with aggressive chemotherapy versus fetal safety. Hormonal changes during pregnancy and lactation create a swelling sensation and an increase in breast volume; as a result, firmness may be perceived as normal physiologic alterations of pregnancy, delaying the detection of abnormal breast masses (Sabate et al., 2007). A thorough baseline examination of the breast should be performed in the early stages of pregnancy before physiologic changes are pronounced (Logue, 2009). Healthcare providers recommend ultrasonography as the initial imaging modality in symptomatic pregnant women (Sabate et al.). Nurses should be aware of the possibility of breast cancer in pregnant women and encourage the continuance of breast self-examinations during pregnancy.

Research on fetal outcomes after exposure to chemotherapy still is limited. The risks and benefits of chemotherapy should be discussed so patients can make informed treatment decisions. Healthcare providers should prepare patients for all possibilities and approach treatment issues with regard to outcomes indicated in current pertinent research. Nurses also should ensure that patients clearly understand the benefits and risks associated with treatment by discussing management strategies using a multidisciplinary approach. The specific pros and cons of different treatment options should be discussed individually with each woman and her partner or a family member (Azim & Peccatori, 2008). Nurses should foster a trusting relationship with patients to provide emotional support and identify potential knowledge deficits that may require additional clarification. Encouraging patients to seek counsel from a nonmedical team member (e.g., counselor, religious leader) may help expand the emotional support system (Davidson et al., 2008). In addition, informed consent for treatment must be individualized.

Patients receiving chemotherapy may experience many unpleasant side effects, particularly pancytopenia, the comprehensive reduction of blood cell numbers (Lehne, 2007). Anemia, the reduction of red blood cells, can be treated with recombinant human erythropoietin (epoetin alfa). According to limited research, epoetin alfa can be used as a safe pharmacologic intervention in pregnant women (Cardonick & Iacobucci, 2004; Peters, Bray, Masidonski, & Mahon, 2001). The reduction of white blood cells and platelet count also should be considered, particularly when patients are at higher risk for infection and bleeding during delivery. Therefore, healthcare providers should try to ensure at least a three-week recovery period from the last dose of chemotherapy to delivery to allow the mother’s blood count to increase. The recovery period is helpful in reducing the risk for complications associated with neutropenia and thrombocytopenia (Cardonick & Iacobucci; Dow, 2000).

Emesis is another prominent side effect. The severity of chemotherapy-related emesis is much higher than pregnancy-related nausea and vomiting, but both may be treated with ondansetron (Berry et al., 1999). Ondansetron is safe to use during the second and third trimester (Peters et al., 2001). Nurses should manage chemotherapy-related emesis to promote fluid and food intake, which greatly influence fetal development and outcome.

Despite ongoing medical treatment and clinical care of women throughout pregnancy, signs and symptoms of postpartum depression often can be overlooked (Nonacs, 2007). About 13% of all new mothers experience postpartum depression (Beck, 2002). Screening women for depressive symptoms during pregnancy also may help identify those at higher risk for postpartum depression (Nonacs). Nurses caring for pregnant women with or without breast cancer should screen each mother for signs and symptoms as well as increased risk factors for postpartum depression. The Edinburgh Postnatal Depression Scale, a 10-item self-rated questionnaire used extensively for the detection of postpartum depression (Cox et al., 1987), is indicated when a nurse suspects postpartum depression may be present or the patient is at increased risk for experiencing the disorder. The most significant factor in the duration of postpartum depression is the length of delay to adequate treatment (Beck). Other risk factors for postpartum depression include lack of energy to take on the caregiver role, inability to breastfeed, and a potentially overwhelming cancer treatment regimen and schedule. Psychological issues, along with the cancer diagnosis, can impair the mother’s ability to bond with her infant. Monitoring for signs of depression and overwhelming feelings is crucial to the care of pregnant women with breast cancer; nurses should provide support and referrals for the management and treatment of such issues.

Conclusion

As the number of pregnant women diagnosed with breast cancer increases, the need for evidenced-based treatment guidelines is critical. Overall survival of pregnant women with breast cancer may be worse than in nonpregnant women at all stages (Yang, Dryden, Gwyn, Whitman, & Theriault, 2006), which likely is caused by delay in diagnosis (Petrek, Dukoff, & Ragotko, 1991). Termination of pregnancy has not shown any beneficial effect on breast cancer outcome and usually is not considered as a therapeutic option, except in cases in which treatments such as chemotherapy and radiation are highly recommended and significantly limited by the pregnancy (NCI, 2008).

Evidenced-based knowledge regarding the treatment of breast cancer during pregnancy is limited. A multicenter database to record the clinical course of all cases is necessary for the development of more beneficial treatment regimens for pregnant women.
patients with breast cancer. The FDA maintains a pregnancy exposure registry, which is a prospective observational study that collects information on women who take vaccinations and medications to catalog the use of different drugs for outcome analysis (see Figure 1). The results of the studies will help pregnant women and their medical providers better understand the effects of drugs on fetal health (FDA, 2009). Registry databases allow researchers to use evidence-based knowledge in making treatment decisions for patients in the future.

Nurses’ responsibilities in caring for pregnant women with breast cancer reach across the continuum of care. A pregnant woman with breast cancer must make life or death decisions about herself as well as her unborn child. The emotional burden weighs heavily on expectant mothers at a time when well-being should be their main concern. Nurses should be aware of the most current research and evidenced-based treatments and have the knowledge and ability to provide emotional support for pregnant women with breast cancer and their families. Collaboration and communication between obstetric and oncology teams are crucial.

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Author Contact: Alexa G. Visco, BA, BSN, RN, can be reached at alexa.visco@vtmednet.org, with copy to editor at CJONEditor@ons.org.

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