

Survivorship Issues in Ovarian Cancer: A Review

Suzy Lockwood-Rayermann, RN, PhD

Purpose/Objectives: To review what is known about survivorship issues for women after ovarian cancer treatment while identifying gaps and controversies.

Data Sources: MEDLINE®, CINAHL®, and CancerLit database searches using the key words *ovarian cancer*, *quality of life (QOL)*, *chronic care*, *coping*, *uncertainty*, and *survivor* separately and in combination.

Data Synthesis: Data were categorized into psychosocial, QOL, and physical symptoms and reviewed for design, sample size, method, and outcome.

Conclusions: Ovarian cancer studies focus on women's symptoms and concerns during treatment. Needs and issues of long-term survivors lack exploration. The relationship of ovarian cancer survivorship and physical side effects of treatment or recurrence is insufficient given increasing survival rates.

Implications for Nursing: The nature and management of physical symptoms, beyond pain, in ovarian cancer survivors need further study. Specifically, QOL and psychosocial issues for long-term survivors require study. Consequences for women who undergo major tissue debulking or multiple and aggressive courses of cytotoxic treatments must be understood to facilitate intervention.

Key Points . . .

- Few studies of symptoms other than pain that alter comfort and quality of life after treatment for ovarian cancer have been conducted.
- Studies of patients with stage I or II ovarian cancer are scarce.
- Improved survival for ovarian cancer after treatment warrants a new emphasis in research.

article is to review what is known about distressful physical symptoms, other than pain, that pose survivorship issues for women after ovarian cancer treatment.

The literature sources for the review represent systematic searches of three major literature databases: MEDLINE®, CINAHL®, and CancerLit. Primary searches of the text words *ovarian cancer*, *quality of life*, *chronic care*, *coping*, *uncertainty*, and *survivor* led to articles that reported research methods and results. A total of 32 studies published from 1983–2005 provided the basis for the review. The studies included a mixture of qualitative and quantitative approaches and used a variety of instruments and interview formats. Fewer than 10 identified a conceptual framework, but they had no consistency. Several review articles provided valuable additional references (Andersen, 1993, 1995; Auchincloss, 1995; Dow, 1995; Fish & Lewis, 1999; McCartney & Larson, 1987; Montazeri, McEwen, & Gillis, 1996; Ozols, 1995).

Common omissions in most research reports were time since patients' diagnoses with ovarian cancer and current status of treatment. Only five articles clearly addressed long-term (more than five years) ovarian cancer survivors (see Table 1). A nationwide study conducted in Canada (Fitch, Gray, & Franssen, 2000, 2001) provided the only comparison report of differences between age groups of women with ovarian cancer. A qualitative study of five women specifically examined the ovarian cancer experience in childbearing-aged women (Schaefer, Ladd, Lammers, & Echenberg, 1999).

Suzy Lockwood-Rayermann, RN, PhD, is an assistant professor in the Harris College of Nursing and Health Sciences at Texas Christian University in Fort Worth. (Submitted March 2005. Accepted for publication October 3, 2005.)

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More effective and less toxic chemotherapy regimens introduced since the 1970s steadily have boosted the survival rate for women with primary invasive ovarian cancer (National Cancer Institute [NCI], 2004). The numbers of women living five years or longer after diagnosis are significant, increasing from 37% in 1976 to an estimated 45% in 2006 (American Cancer Society [ACS], 2006). Gynecologic oncologists attribute survival improvements to advanced surgical techniques, with optimal debulking surgery consequently maximizing the effectiveness of postoperative therapies. Despite an increase in longevity, surviving ovarian cancer often brings an array of unpleasant side effects and major compromises in quality of life (QOL). However, the body of research findings specific to ovarian cancer survival is limited.

Those who care for ovarian cancer survivors recognize that symptom management, along with the distress of long-term treatment effects, seriously affects life satisfaction and quality. Symptoms after therapy and their negative effects on QOL following other types of cancer treatment are well documented in the research literature. Pain has been studied extensively in populations that include patients with ovarian cancer (Ersek, Ferrell, Dow, & Melancon, 1997; Miaskowski, 1996; Steginga & Dunn, 1997). Receiving less attention are studies of symptoms other than pain that alter comfort and QOL after treatment for ovarian cancer. Therefore, the purpose of this

Table 1. Summary Table of Published Ovarian Cancer Studies on Survivorship Issues

Study	N (% With Cancer)	Age (Years)	Methodology	Stage of Disease	Time Since Diagnosis	Current Treatment	Instruments
Andersen & Jochimsen, 1985	48 (0.02)	31–65, \bar{X} = 47.5	Quantitative, qualitative	I = 1	Unknown	Unknown	Derogatis Sexual Functioning Inventory, Sexual Arousal Inventory Scale, Global Sexual Evaluation, Body Image Scale, Dyadic Adjustment Scale (Modified), interview
Bodurka-Bervers et al., 2000	246 (100)	22–76, \bar{X} = 56.7	Quantitative	Early = 65, advanced = 181	128 ≤ 30 months, 118 > 30 months	Yes = 121, no = 124	Center for Epidemiologic Studies–Depression (CES-D) scale, Spielberger State-Trait Anxiety Inventory (STAI) State Anxiety Subscale, Functional Assessment of Cancer Therapy (FACT)–Ovarian, Zubrod Score
Breaden, 1997	6 (unknown)	33–69	Hermeneutic	Unknown	8 months	No	Interview
Cain et al., 1983	60 (25)	18–75	Interview, self-report	Yes; not specific to type	1 month	Unknown	Depression Rating Scale, Hamilton Anxiety Scale, Psychosocial Adjustment to Illness Scale, Social Adjustment Scale, STAI
Donovan & Ward, 2005	49 (74)	Unknown, \bar{X} = 58.2	Quantitative	Unknown	\bar{X} = 18.81 months	Yes	Self-report questionnaire, University of Texas M.D. Anderson Symptom Inventory Interference Scale
Ekman et al., 2004	10 (100)	21–56	Qualitative, hermeneutic	Unknown	Variable	Yes	Three interviews (diagnosis, treatment, and post-treatment), narratives
Ersek et al., 1997	152 (100)	24–75, \bar{X} = 53	Quantitative, qualitative	Unknown	\bar{X} = 5 years; 39% active disease	7%	Demographic tool (cancer survivors), quality-of-life scale (cancer survivors), three open-ended questions
Felder, 2004	183 (0)	–	Quantitative	Unknown	Unknown	Unknown	Herth Hope Scale, Jalowies Coping Scale, demographic form
Ferrell et al., 2003	21,806 (100)	Unknown	Ethnographic	Unknown	Unknown	Unknown	Quality-of-Life Ovarian Cancer Instrument
Fitch et al., 2000	263 (100)	21–61, \bar{X} = 59	Quantitative	Unknown	93 = recurrent disease; 170 = no recurrence	Variable	Survey development
Fitch et al., 2001	146 (100)	61–93, \bar{X} = 70	Quantitative	Unknown	10% < 1 year; 66% 1–5 years; 23% > 5 years; 32% recurrent; 37% in treatment	Yes = 54, no = 92	Survey questionnaires
Guidozzi, 1993	28 (100)	39–78, \bar{X} = 59	Quantitative, qualitative	II = 1, III = 21, VI = 6	Persistent disease	Variable	Interviews over two years every three months, Spitzer Quality-of-Life Index
Halstead & Hull, 2001	10 (10)	45–70	Qualitative, grounded theory	Unknown	Variable	No	Two semistructured interviews
Howell et al., 2003a	18 (100)	35–73	Qualitative	Unknown	Unknown	Unknown	Semistructured telephone interviews
Howell et al., 2003b	18 (100)	35–73	Qualitative	Unknown	Unknown	Unknown	Semistructured telephone interviews
Kornblith et al., 1995	151 (100)	\bar{X} = 54	Quantitative, qualitative	III = 68%, IV = 18%	Variable	Yes	Functional Living Index–Cancer (FLIC), Rand Mental Health Inventory (MHI), Pain Questionnaire, Memorial Symptom Assessment Scale (MSAS), chart review
Lakusta et al., 2001	60 (100)	24–82, \bar{X} = 58.8	Descriptive, retrospective, chart review	I = 8%, II = 11%, III = 66%, IV = 15%	Variable	Yes	Chart review, European Organization for Research and Treatment of Cancer Quality-of-Life Questionnaire
Mahon & Casperson, 1997	20 (10)	26–72, \bar{X} = 54	Qualitative	Unknown	Variable; \bar{X} = 37 months	No	Interview, cognitive appraisal
Mishel & Sorenson, 1991	131 (37)	24–89, \bar{X} = 58	Quantitative	Varies; not specific to ovarian	Variable	Yes	Mischel Uncertainty in Illness Scale, Mastery Scale, Ways of Coping Checklist, Profile of Mood States
Payne, 2002	17 (23)	21+	Quantitative, descriptive, longitudinal, repeated measures	Stage II	7.5 months	Yes	Demographic questionnaire, Piper Fatigue Scale, laboratory values, weight

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Table 1. Summary Table of Published Ovarian Cancer Studies on Survivorship Issues (Continued)

Study	N (% With Cancer)	Age (Years)	Methodology	Stage of Disease	Time Since Diagnosis	Current Treatment	Instruments
Penson et al., 2004	151 (100)	18+	Quantitative, qualitative	Unknown	Yes	Unknown	Demographic information, clinical scenarios, prognosis and treatment-benefit decision questions
Pilkington & Mitchell, 2004	14 (64)	30–73, \bar{X} = 51.5	Qualitative, descriptive-exploratory	Unknown	Variable	Variable	Interview, open-ended questions
Portenoy et al., 1994	243 (20.6)	23–86, \bar{X} = 55.5	Quantitative	Unknown	Unknown	Unknown	MSAS, Memorial Pain Assessment Card, MHI, FLIC, Symptom Distress Scale, Karnofsky Performance Status
Roberts et al., 1992	32 (unknown)	33–87, \bar{X} = 62.4	Quantitative, qualitative	Unknown	1–9 years, \bar{X} = 3	No	Semistructured interviews; FLIC; Symptom Checklist-90-Revised
Ryan et al., 2003	82 (8)	Unknown	Retrospective, qualitative	Unknown	Unknown	Unknown	Structured interviews
Schaefer et al., 1999	5 (100)	Childbearing age	Qualitative, phenomenologic	Unknown	1–10 years	Unknown	Interviews
Smith et al., 1985	357 (13)	20–54, \bar{X} = 45.6	Quantitative	Unknown	1–3 months	Unknown	Questionnaires, structured interviews
Steginga & Dunn, 1997	82 (20)	20–65+	Descriptive retrospective, qualitative, mailed survey	Unknown	Variable	No	Personal Experience of Cancer Questionnaire (mailed)
Swenson et al., 2003	109 (100)	19–64, \bar{X} = 36	Qualitative, naturalistic inquiry	Unknown	Unknown	Yes	Semistructured questionnaire, interviews
Wenzel et al., 2002	49 (100)	30–76, \bar{X} = 55.9 at diagnosis; 37–84, \bar{X} = 64.6 at time of study	Quantitative, qualitative	I = 77.6%, II = 22.4%	> 5 years	Unknown	Quality of Life–Cancer Survivorship Inventory, Medical Outcomes Study Short Form-36, FACT Gynecologic Oncology Group Neurotoxicity Scale, gynecologic concerns five-item scale, Abdominal Pain Scale, Impact of Event Scale, CES-D, Confidence Adjusting to Illness Scale, Functional Social Support Quest, sexual activity questionnaire, Integrative Care Experience Scale, Post-Traumatic Growth Inventory, demographics, cancer and other medical history, four open-ended questions
Zabora et al., 2001	4,496 (2)	19–95, \bar{X} = 57	Quantitative; data of patients from previous trials	Not specific to ovarian	Not specific to ovarian	Unknown	Brief Symptom Inventory, demographic information
Zacharias et al., 1994	40 (32)	30–67, \bar{X} = 50	Quantitative	Not specific to ovarian	Not specific to ovarian	Yes = 6, no = 34	Quality of Life–Cancer Version, coping scale, general information form

Overview of Ovarian Cancer

Incidence and Survival Rates

Ovarian cancer is the fourth leading cause of cancer-related deaths in women (ACS, 2006). No proven methods exist for prevention of the disease, nor do any definitive methods for early detection. A once-fatal diagnosis, ovarian cancer now responds to new chemotherapy and new treatment protocols. Today, more women treated for ovarian cancer survive longer than five years. Survival rates vary by age: Women younger than 65 are twice as likely to survive five years after diagnosis than those aged 65 and older (ACS). The overall one-year survival rate is nearly 76% (ACS). Survival is directly associated with the stage of disease at diagnosis. Only 19% are diagnosed at stage I, which has the highest survival rate (94%) (ACS). Patients' levels of function and comorbidities at the time of diagnosis affect their ability to tolerate tumor-reductive surgery and chemotherapy. Other prognostic factors for ovarian cancer include the volume of disease remaining after surgery and histology of the cancer

(Martin, 2002). Preexisting functional abilities such as mobility, respiratory function, skin integrity, and nutritional status establish patients' performance condition. Tools such as the Karnofsky, World Health Organization, and Zubrod scales objectively measure functional abilities. However, the scales measure only physical functional abilities of patients (Moore-Higgs, Almadrones, Colvin-Huff, Gossfeld, & Eriksson, 2000).

Types of Ovarian Cancer

Two primary types of ovarian cancer exist: epithelial and nonepithelial. Epithelial ovarian cancer accounts for 90%–95% of ovarian tumors (Harries & Gore, 2002). Those tumors are found in the germinal epithelium or mesothelium on the surface of the ovary. These common epithelial tumors arise from where the surface of the epithelium has penetrated into underlying stroma, forming glands or cysts. Repeated or incessant ovulation and hyperstimulation of the ovaries are thought to be potentially important etiologic factors in the development of ovarian cancer (Sonoda, 2004). Tumors with

low malignant potential or tumors of borderline malignancy are one subclass in the histologic classification of epithelial tumors. Nonepithelial ovarian cancer is a family of cancers that consists of two main categories: malignant germ cell tumors and ovarian stromal cancers. The incidence of these tumors is rare; malignant germ cell tumors account for only 2%–3% and stromal tumors account for 2% of all ovarian malignancies (Martin, 2002; Moore-Higgs et al., 2000).

Treatment of Ovarian Cancer

Traditional treatment for ovarian cancer has been tumor-reductive surgery followed by six cycles of combination chemotherapy with cisplatin or carboplatin plus a taxane (Markman, 2001). Despite improvement in survival rates with combination chemotherapy, the reality of the disease is that even with initial remission, as many as 80% of women with ovarian cancer experience recurrence (Bookman, 1999). Evidence to support administration of intraperitoneal (IP) chemotherapy after surgery for women diagnosed with advanced ovarian cancer recently was released. In the study, patients with ovarian cancer treated with IP chemotherapy demonstrated no disease progression for an average of 24 months compared to 19 months for women who received standard IV treatment (Armstrong et al., 2006). When studying possibilities for improvement in long-term survival rates of women with ovarian cancer, results where a significantly higher number of patients receiving IP treatment experienced adverse effects must be considered (Armstrong et al., 2006). An essential aspect of care for ovarian cancer survivors is symptom management. The distress associated with the long-term effects of treatment and its impact on QOL is of particular interest.

Chronic Illness or Terminal Diagnosis

Given recurrence rates, cure is not a realistic possibility for most women with ovarian cancer. Instead, most ovarian cancers today fit the definition of a chronic disease as defined by NCI (2004): a disease or condition that persists or progresses over a long period of time. As with other chronic diseases, management of ovarian cancer and its symptoms is possible for an indefinite period. Women's experiences of being diagnosed with a long-term illness have not been well documented, and none was found concerning ovarian cancer. Chronic disease classification does not mean the end of treatment for ovarian cancer survivors. Most must continue receiving a variety of oral or IV cytotoxic drugs. For patients who recur after initial therapy, response to additional chemotherapy seems to be directly related to the platinum-free interval, which is the time elapsed since the completion of platinum-based therapy without recurrence (Bookman, 1999). Some will be retreated with previously demonstrated tumor-sensitive regimens as well as new drugs in novel combinations or delivery modalities. Responses to subsequent treatments can vary based on the intensity of previous side effects and residual sequelae.

Symptomatology and Survivorship

A general review of cancer survivorship literature reveals that symptoms occur in ovarian cancer survivors in physical, psychological, sexual, social, and spiritual dimensions. Managing symptoms in each of these areas has relevance to clinical practice in planning care from initial diagnosis to beyond treatment. Because overlaps and interdependence exist among

the dimensions, the literature gathered for the current review generally fell into three broad symptom categories: physical, psychosocial, and those affecting QOL.

Coping With Physical Symptoms and Treatment Side Effects

Nineteen studies examined the impact of treatment on the physical being of patients with ovarian cancer (see Table 2). In comparison to surgery, chemotherapy-induced physical symptoms can be more debilitating and have the greatest impact on QOL for women with ovarian cancer (Guidozzi, 1993). The cornerstone of initial treatment for ovarian cancer is cytoreductive surgery, with the goal to remove as much of the visible tumor as possible. Surgery is followed by adjuvant chemotherapy, generally in the form of a platinum-based cytotoxic agent and a taxane. The chemotherapy used has a wide range of adverse effects. Fatigue, nausea and vomiting, peripheral neuropathy, anorexia, and myelosuppression are primary. Most ovarian cancer pain is caused by the tumor (Miaskowski, 1996). Multiple courses of chemotherapy, second- and third-line regimens, or salvage and consolidation treatments are part of the ovarian cancer trajectory for most patients.

Table 2. Summary of Physical Symptom Variables Addressed in Published Ovarian Cancer Studies

Study	Currently Under Treatment	Symptom(s) Addressed
Andersen & Jochimsen, 1985	Unknown	Sexuality
Cain et al., 1983	Unknown	Alopecia
Donovan & Ward, 2005	100%	Fatigue and energy
Ekman et al., 2004	7%	Nausea and vomiting, appetite, sexuality, sleep, bowel concerns, fatigue and energy, pain
Fitch et al., 2000	Varied	Bowel concerns, pain
Fitch et al., 2001	37%	Sleep, bowel concerns
Guidozzi, 1993	Varied	Nausea and vomiting, alopecia, sexuality, fatigue and energy, neurotoxicity
Howell et al., 2003b	Unknown	Sexuality
Kornblith et al., 1995	Yes	Sexuality, sleep, pain
Lakusta et al., 2001	Yes	Nausea and vomiting, appetite, sleep, bowel concerns, fatigue and energy, dyspnea
Payne, 2002	Yes	Sleep, fatigue and energy
Penson et al., 2004	Unknown	Nausea and vomiting, appetite, alopecia, bowel concerns, fatigue and energy, neurotoxicity
Portenoy et al., 1994	Unknown	Appetite, sleep, bowel concerns, fatigue and energy, pain
Roberts et al., 1992	No	Sexuality
Ryan et al., 2003	Unknown	Lymphedema
Schaefer et al., 1999	Unknown	Alopecia
Steginga & Dunn, 1997	No	Alopecia, sexuality, bowel concerns, bladder concerns, vaginal issues, fatigue and energy, pain, weight gain, headache, vision, lymphedema
Wenzel et al., 2002	Unknown	Sexuality, bowel concerns, vaginal issues, neurotoxicity
Zacharias et al., 1994	15%	Sexuality

Management of symptoms can be difficult because of comorbidities and functional status that women may have had prior to treatment or acquired as a result of treatment (Feuer, Broadley, Shepherd, & Barton, 2000). Because ovarian cancer tends to stay in the abdominal area, primary problems that patients experience as the cancer advances or recurs include ascites, bowel obstruction, pain, malnutrition, and cachexia (Fitch et al., 2000; Lakusta et al., 2001; Martin, 2002; Steginga & Dunn, 1997). Surprisingly, nausea and vomiting, an expected side effect of cancer treatment, has received relatively little attention in patients with ovarian cancer (Guidozzi, 1993; Lakusta et al.).

Ovarian cancer survivors commonly experience gastrointestinal side effects and alterations in taste. Significant bowel symptoms, such as constipation and diarrhea, can occur during and after treatment (Fitch et al., 2000, 2001; Lakusta et al., 2001; Wenzel et al., 2002). A colostomy initially may be necessary as a result of tumor debulking. A colostomy also may be required to manage acute problems such as obstruction. Alterations in taste as a side effect of platinum therapy have been reported but lack extensive study (Moore-Higgs et al., 2000). Damage to the kidneys and bladder also can occur, resulting in electrolyte imbalance. Bladder dysfunction, although a commonly reported side effect for the cytotoxic drugs used in ovarian cancer treatment, rarely is accounted for in studies of patients with ovarian cancer (Steinga & Dunn, 1997).

Little research has been reported concerning lower-body lymphedema as a side effect of treatment for ovarian cancer, despite the fact that lymphedema frequently results from tumor mass or surgical interventions. One study described the impact of lymphedema on appearance, motility, finances, and self-image in 10 patients (Ryan et al., 2003). In another study of patients with breast and ovarian cancer, 28% of the women with ovarian cancer reported swelling in their legs (Portenoy et al., 1994). Miaskowski's (1996) review article spoke briefly about lymphedema in patients with gynecologic cancer but only about its relationship to pain.

Peripheral neuropathy has been reported in 57%–92% of all patients treated with cisplatin and 60% of those receiving taxanes (Armstrong, Almadrones, & Gilbert, 2005). Neurotoxicity is a significant and dose-limiting side effect for patients with ovarian cancer (Armstrong et al., 2005; Wenzel et al., 2002). No treatment exists to reverse peripheral neuropathy; however, steps can be taken to prevent or reduce its incidence (Guidozzi, 1993). Few studies have explored the incidence and course of peripheral neuropathy in patients with ovarian cancer; thus, recommendations are not well understood for coping with the side effect. Cognitive dysfunction is a relatively new phenomenon reported by ovarian cancer survivors, and, as of yet, few studies have been published on the topic outside of those in relationship to breast cancer treatment (Jansen, Miaskowski, Dodd, & Dowling, 2005; Wefel, Lenzi, Theriault, Davis, & Meyers, 2004).

Another common side effect of cytotoxic drugs used for ovarian cancer is bone marrow depression, resulting in an increased risk for infections, anemia, and thrombocytopenia. The side effect becomes particularly difficult as the number of courses of treatment increases. Bone marrow depression can affect a woman's performance of daily activities such as errands, housework, and cooking, as well as her professional and social relationships (Ersek et al., 1997; Guidozzi, 1993; Lakusta et al., 2001; Payne, 2002; Portenoy et al., 1994; Steginga & Dunn, 1997).

Limitations in activity—both personally and professionally—resulting from risk for infection, bleeding, fatigue, and treatment delay, although studied in other cancers, are not evident in the ovarian cancer population.

Most lifestyle changes reported in the literature for all patients with cancer correlate with fatigue and are recognized as a major obstacle to daily functioning and QOL (Ahlberg, Ekman, & Gaston-Johansson, 2005). Payne (2002) specifically studied the trajectory of fatigue in women with ovarian and breast cancer. Women reported that fatigue continued even after completion of treatment, a side effect not limited to the cancer treatment period (Payne). Another study reported that in a group of patients with gynecologic cancer, fatigue was moderately distressing and uncontrollable (Donovan & Ward, 2005). The primary strategy identified for coping with fatigue was sleep or rest (Donovan & Ward). Fatigue related to insomnia or treatment side effects was not clearly correlated in most studies examined. Some reports described women as not having much energy, whereas others reported some women as having a “new impetus for activity” (Ersek et al., 1997; Fitch et al., 2001; Kornblith et al., 1995; Lakusta et al., 2001; Portenoy et al., 1994; Steginga & Dunn, 1997).

Surgery for gynecologic malignancies can cause body-image changes and problems with sexuality. Alopecia was a significant side effect in one study of childbearing-aged women (Schaefer et al., 1999), although it was reported to be of concern in others (Guidozzi, 1993; Steginga & Dunn, 1997). Sexuality falls in the paradigms of QOL and psychosocial issues but sometimes is rooted in a physical cause (Ersek et al., 1997; Fitch et al., 2000; Kornblith et al., 1995; Portenoy et al., 1994; Steginga & Dunn). Symptoms directly related to alterations in the reproductive tract can be expected. Several medications used for cancer treatment and symptom management cause vaginal dryness, making intercourse uncomfortable. The effects of treatment-related menopause have had limited study (Davis, Zinkand, & Fitch, 2000); however, two studies reported vaginal problems, primarily dryness, as a common occurrence (Steinga & Dunn; Wenzel et al., 2002). Hot flashes, lack of libido, and dyspareunia from treatment-related menopause lack systematic study.

One study reported that patients with ovarian cancer had little concern about treatment side effects because of an acceptance of therapy as essential and even desirable (Ekman, Bergbom, Ekman, Berthold, & Mahsneh, 2004). Anecdotally, some women with ovarian cancer perceive that the number and intensity of side effects correlate with cure (e.g., “The sicker I am, the better the drug is working.”). Treatments frequently are debilitating while paradoxically providing the possibility of extended survival.

Psychological Issues

Psychological distress is prevalent in people with cancer because the diagnosis causes disruption in all aspects of patients' daily lives (Zabora, BrintzenhofeSzoc, Curbow, Hooker, & Piantadosi, 2001). The literature explores such issues as waiting for recurrence, facing the diagnosis of recurrence, and attempting to regain control (McKenzie & Crouch, 2004). The current search yielded 28 studies that broadly examined psychological issues in patients with gynecologic cancer. The studies used different methodologies and instruments, so direct comparisons were limited. Still, commonalities existed in the findings.

Ovarian cancer affects day-to-day living, not only for women with the disease but also for their families (Howell, Fitch,

& Deane, 2003a). Loss of ability to work and financial concerns because of uncertainty about the future were significant (Howell et al., 2003a). Realizing that life was changed forever, women and their families experienced significant emotional distress (Howell et al., 2003b). The stigma of cancer, acute awareness of the possibility of death, fear of metastasis and recurrence, and altered sexuality also were reported as having a psychological impact on everyone touched by the diagnosis (Ersek et al., 1997; Steginga & Dunn, 1997).

Among study outcomes documenting psychological sequelae of ovarian cancer were significant levels of depression and anxiety (Bodurka-Bevers et al., 2000; Cain et al., 1983; Ersek et al., 1997; Kornblith et al., 1995; Mahon & Casperson, 1997; Steginga & Dunn, 1997), behavioral disruptions, and emotional distress, even in patients who achieved complete remission two years post-treatment (Guidozzi, 1993). Psychological distress among patients with ovarian cancer was significantly correlated to the number of physical symptoms women experienced (Portenoy et al., 1994). Cain et al. found that women with ovarian cancer had significantly greater symptoms of depression and social impairment than women with psychiatric disease. Social impairment included difficulties with vocational, domestic, and sexual functioning. In contrast to the majority of evidence, Roberts, Rossetti, Cone, and Cavanagh (1992) reported that patients with gynecologic cancer were not at any increased risk for psychological problems.

Because of the stage of presentation as well as aggressive surgery and chemotherapy regimens, vulnerability to psychological morbidity is higher in women with ovarian cancer (McCorkle, Pasacreta, & Tang, 2003). Delayed diagnosis, when ovarian cancer is found in advanced stages, may result in women having strong feelings of guilt for failing to realize potential symptoms. Chance of dying, changed self-perception, treatment-related menopause, infertility, and relationship problems are all issues for ovarian cancer survivors (Auchincloss, 1995). Ovarian cancer can affect any relationship profoundly. The death of a friend who shares the same ovarian cancer diagnosis can lead to feelings of vulnerability and concern about a survivor's own treatment (Auchincloss).

The possibility of early death and associated fear and challenges have had limited investigation in the ovarian cancer population (Howell et al., 2003b). Survival of people with cancer begins at the point of diagnosis, and for many it is a process, one filled with feelings of luck, changes, and a focus on "living in time" (Breaden, 1997; Fredette, 1995). Several studies, using an interview format, identified common themes in living with or being treated for ovarian cancer. Accepting treatment, maintaining normalcy, and feeling weak and anxious were significant (Ekman et al., 2004). Fear of recurrence, or Damocles syndrome, seemed to be significantly influenced by prior cancer-related experiences and dominated by death concerns (Mahon & Casperson, 1997). Positive aspects of recurrence, such as appreciating life, seeing each day as important (Fitch et al., 2000), "living in the moment" (Howell et al., 2003a, 2003b), and reordering priorities were significant in living with ovarian cancer.

Ovarian cancer threatens female identity at any age (Cain et al., 1983). It not only carries the threat of death but also results in the removal of organs that represent the physiologic core of femininity, motherhood, and sexuality. Identification of sexuality and its relationship to the psychological sequelae can be present in each case (Andersen, 1987, 1993; Guidozzi,

1993; Wilmoth & Spinelli, 2000). Body-image disruption, intercourse frequency, and level of sexual arousal appear to be a prevalent problem for patients with gynecologic cancer when matched with healthy women (Andersen & Jochimsen, 1985). Physical changes experienced, particularly those resulting from surgery, can make an ovarian cancer survivor "feel like a stranger in my own body" (Schaefer et al., 1999).

Cancer survivors, because they "feel well," live with uncertainty, anxiety, and an increased awareness of mortality (Fredette, 1995; McKenzie & Crouch, 2004). Fear of recurrence underlies the uncertainty and the perception of being "endangered" or more "at risk." Uncertainty is the inability to determine the meaning of illness-related events and predict outcomes (Mishel, 1990). Mishel's Uncertainty in Illness Theory explains how patients cognitively process illness-related stimuli and how they structure or determine value for those events using inference and illusion. According to reconceptualizations of the theory, integration of uncertainty into the experience of chronic illness allows for the formation of a new perspective and ultimate construction of a new orientation to life with chronic illness (Mishel).

Mishel and Sorenson (1991) studied uncertainty in patients with gynecologic cancer in which they specifically tested the mediating functions of mastery and coping in Mishel's (1990) Uncertainty in Illness Theory. Mastery was weakened when women experienced varying degrees of uncertainty, thereby adding to the perception of danger and lowering their sense of opportunity. "Wishful thinking" and "focusing on the positive" were identified specifically as assisting study participants in adapting to and dealing with the uncertainty of gynecologic cancer.

Reports clarify the significance of the relationship between uncertainty and the importance of spirituality in the responses of women diagnosed with cancer during a five-year period following initial treatment (Halstead & Hull, 2001). Spirituality and a partnership with God allowed women to confront their inability to control life (Halstead & Hull). Illness uncertainty can last well past the diagnosis of cancer and its treatment (Gil et al., 2004). Triggers for feelings or fears of recurrence commonly reported for breast cancer survivors included hearing about recurrence in someone else, experiencing new pains, and responding to environmental triggers such as smells or sights (Gil et al.).

Significant changes in relationships with family and friends and tenuous connections with healthcare providers can result in feelings of abandonment or loneliness (Bachmann, 1990; Ersek et al., 1997; Guidozzi, 1993; Schaefer et al., 1999; Smith, Redman, Burns, & Sagert, 1985). Several studies have identified that many women felt dissatisfied with the information they received from their healthcare providers (Fitch et al., 2001; Jefferies, 2002). The need to talk, particularly for women with recurrent disease and variations in coping, supports the importance of personalized interventions for each woman. Researchers reported no significant differences in coping strategies and QOL measures between ovarian cancer survivors and their spouses (Zacharias, Gilg, & Foxall, 1994).

Rarely studied but alluded to in the ovarian cancer literature are "check-up anxiety" and "CA-125 obsession" (Auchincloss, 1995). The implications of remembrance, fear of recurrence, and awareness of cancer-related changes associated with living are significant factors in surviving (Anderson & Lutgendorf, 1997; Bachmann, 1990; Ersek et al., 1997; Fitch et al., 2000; Guidozzi, 1993; Schaefer et al., 1999; Smith et

al., 1985; Steginga & Dunn, 1997). One study reported the significance of participation in counseling for patients with ovarian cancer (Roberts et al., 1992).

The Threat of Recurrence

The impact of recurrence often is influenced by prior cancer-related experiences and, not surprisingly, dominated by death concerns (Jefferies, 2002; Mahon & Casperson, 1997). As expected, the number of physical problems increases significantly with recurrent disease, thereby affecting the psychosocial and QOL aspects of life for patients with ovarian cancer (Fitch et al., 2001). Recurrent disease has been a focus of few ovarian cancer studies (Guidozzi, 1993; Howell et al., 2003a, 2003b; Mahon & Casperson; Wenzel et al., 2002). Fear of follow-up tests and recurrence linger within the sequela of survival. Only one study was found that used CA-125 as a variable in relationship to attitudes toward chemotherapy. The CA-125 blood test is a useful tumor marker not only for diagnosis but also for relapse in approximately 80% of patients with ovarian cancer (Penson et al., 2004). Preoccupation with the numerical value of the test has positive and detrimental effects on patient and family decision making about treatment (Harries & Gore, 2002; Penson et al.). How ovarian cancer survivors deal with CA-125 test outcomes has not been studied.

The importance of personal communication with healthcare providers is pivotal to women's successful adjustment to and understanding of recurrence (Howell et al., 2003b). Attempts to regain control after recurrence frequently may lead to exploration of alternative or complementary treatment options. Many reasons may lie behind the decision to use such treatments after cancer recurrence, but few studies have investigated people's motives and choices. Given ovarian cancer recurrence rates, the topic seems appropriate for study.

Quality-of-Life Studies

QOL, referring to patients' appraisal of and satisfaction with their current level of functioning compared to their perceived ideal (Anderson & Lutgendorf, 1997), has received attention in the cancer literature, but a paucity of research involves QOL in long-term ovarian cancer survivors. Among the 22 studies that specifically examined QOL in female patients with cancer, only 11 included information specific to ovarian cancer survivorship. The late stage at which ovarian cancer usually is diagnosed makes life decisions about curative versus palliative care in treatment particularly difficult for patients. Several review articles address QOL issues in this population (Andersen, 1993; Anderson, 1994; Anderson & Lutgendorf, 1997; Fish & Lewis, 1999; McCartney & Larson, 1987; Montazeri et al., 1996). However, the absence of objective and subjective research reports in this population is a major gap in the literature.

Because of aggressive treatments for ovarian cancer, the assumption exists that QOL for these women will be poor (Roberts et al., 1992). Most studies describe QOL in women with ovarian cancer as changing over time and being subjective (Guidozzi, 1993). The psychosocial domain includes indicators of a positive or beneficial QOL. Experiences such as happiness, satisfaction, feeling listened to, mourning loss, or maintaining normality were common (Breaden, 1997; Ekman et al., 2004; Pilkington & Mitchell, 2004; Swenson, MacLeod, Williams, Miller, & Champion, 2003). Other studies have reported an increase in QOL after ovarian cancer diagnosis (Roberts et al., 1992; Zacharias et al., 1994).

QOL for patients with ovarian cancer correlates with the number of physical symptoms experienced (Kornblith et al., 1995; Pilkington & Mitchell, 2004; Portenoy et al., 1994). Results have led to the recommendation that the number of symptoms experienced would be a useful measure of QOL (Portenoy et al.). Kornblith et al. specifically studied QOL for patients with ovarian cancer, assessing them at three-month intervals after their enrollment in the study. Impaired physical functioning was the greatest predictor for psychological distress and decreased QOL for the women in the study. As physical functioning declined, patients' psychosocial status declined to levels that warranted clinical treatment.

For patients with persistent disease, goals change and maintaining a normal life becomes central to patients and those participating in their care (Anderson, 1994; Guidozzi, 1993). Ersek et al. (1997) reported one of the first large studies about the impact of ovarian cancer on QOL for long-term survivors. The basis of the study is Ferrell et al.'s (1996) QOL model. The primary physical complaint that influenced QOL in the sample was fatigue; nausea and anorexia had minimal impact on women's QOL. Patients with ovarian cancer attributed the decrease in QOL to the interference of fatigue and treatment schedules with their usual activities.

Spirituality as an aspect of QOL has had increased study since the 1990s. Various aspects of spirituality and the role it can play in improving QOL and surviving ovarian cancer have been found to be significant in several studies not only during the early period of diagnosis and treatment but also in women with no evidence of disease (Ersek et al., 1997; Halstead & Hull, 2001; Steginga & Dunn, 1997; Wenzel et al., 2002; Zacharias et al., 1994). Ferrell, Smith, Juarez, and Melancon (2003) studied the meaning of illness and spirituality for ovarian cancer survivors. Reviewing more than 21,000 pieces of correspondence received during a six-year period, Ferrell et al. (2003) were able to qualitatively study the meaning of QOL for the women in their study; they identified participation in religious activities as a primary source of support.

The value that patients assign to the relationships they develop, not only with family but also with healthcare providers, influences QOL (Felder, 2004; Pilkington & Mitchell, 2004; Roberts et al., 1992; Swenson et al., 2003). In addition to the presence of others, maintaining autonomy and control during the struggle of living was important. When caregivers listen and demonstrate understanding of survivor experiences, survivors' QOL can improve (Jefferies, 2002). In one sample, 34% of ovarian cancer survivors did not receive any written information and 31% reported only having a few of their questions answered (Jefferies). Being aware of and addressing informational and emotional needs of patients with sincerity and sensitivity is important for improvement in QOL (Dow, 1995; Lammers, Schaefer, Ladd, & Echenberg, 2000; Pilkington & Mitchell).

Lessons Learned From Other Survivor Populations

The experience of uncertainty in patients with breast cancer is particularly applicable to patients with ovarian cancer because both populations are largely female. Because treatment does not guarantee cure, women with breast cancer, and presumably ovarian cancer survivors, live with uncertainty. A growth-producing aspect of uncertainty discovered in a study

of women living with breast cancer was the new freedom survivors felt to express themselves more openly and honestly than before their breast cancer diagnoses (Nelson, 1996). The study also found that uncertainty varies over time and that optimism, freedom, and intrigue, aspects of uncertainty previously identified in Mishel's (1990) theory, were particularly applicable to surviving breast cancer. Differences in levels or specific aspects of uncertainty related to stage at diagnosis or time since diagnosis are attributes that could be significant to ovarian cancer survivors as well.

The term "revival" describes the experience of patients who were expected to die and instead recovered (Cochrane, 2003). Little is known about how patients who survive ovarian cancer deal with the experience of revival, such as women with ovarian cancer who reach complete remission, even when diagnosed at stage I or II, or survivors who repeatedly respond to multiple chemotherapy combinations. Survival time from diagnosis to death has lengthened, and palliative care may need to coexist with disease-specific therapy over a variable and extended period of time.

Patients have described the diagnosis of a life-threatening illness as an extreme traumatic stressor. In this respect, the diagnosis of cancer meets criteria fundamental to the diagnosis of post-traumatic stress disorder (PTSD). No research has formally screened for PTSD in cancer survivors. Prolonged, extensive, or aversive treatment, such as chemotherapy, has been associated with an increased risk for PTSD. Forty-nine percent of a sample of patients with breast cancer used in one study indicated repeated disturbing flashbacks or intrusive memories of cancer treatment and the overall experience of cancer (Cordova et al., 1995). Study findings suggested that PTSD symptoms in patients with cancer exceed the rate in the general population. The elevation was associated with poorer QOL, lending support to further investigation in ovarian cancer survivors.

Cancer fatalism is the belief that death is inevitable when cancer is present. Though fatalism is a significant barrier to cancer care, little research exists on the topic (Powe & Finnie, 2003). Since the late 1990s, cancer fatalism research has expanded to encompass its influence at multiple points along the cancer continuum: screening, detection, and treatment. The relationship between knowledge of cancer and fatalism has had minimal attention. Detection of ovarian cancer frequently is delayed because of its initial, sometimes-vague symptom profile. The role of cancer fatalism in contributing to delayed diagnosis offers an area for investigation. In the only identified study on cervical cancer screening and cancer fatalism, women's views of screening resulted in statements such as "I would rather not know" and "there is not much I can do about the cancer" as common rationale for lack of participation (Chavez, Hubbell, Mishra, & Valdez, 1997).

Gaps and Controversies in the Knowledge Base

Review of published studies on ovarian cancer survivors provides an opportunity for identification of areas needing further investigation (see Figure 1). Therapeutic studies demonstrate that treatment for ovarian cancer does not ensure a cure. Statistics that indicate cancer recurs in 80% of patients generate issues of uncertainty and fear among ovarian cancer survivors (Bookman, 1999). Overall, the studies examined for the current

- Living with ovarian cancer beyond five years
- Lower-limb lymphedema
- Post-traumatic stress syndrome
- Neurotoxicity
- Cognitive dysfunction related to treatment
- Bladder symptom management
- Cancer fatalism
- Concerns associated with surgical menopause and other hormonal sequelae
- Burden of illness on family
- Relationship of quality of life and physical functioning to stage at diagnosis
- CA-125 dependence and its subsequent effect on ability to function and quality of life
- Emotional distress and feelings of guilt related to survival
- Feelings of guilt or fear for women diagnosed with stage I–II

Figure 1. Gaps in the Ovarian Cancer Literature

review paint an incomplete picture of the ovarian cancer survivor because they failed to consider stage of cancer at diagnosis and did not include long-term survivors. Increasing disability and discomfort for patients with ovarian cancer are recurrent themes in several articles but have not been studied systematically. This knowledge gap exists despite evidence of increasing numbers of women living beyond five years. Because ovarian cancer survivors may or may not be on consolidation or maintenance treatment for their ovarian cancer, the physical and psychosocial impact of any treatment protocol needs study.

Studies of patients with early-stage (I or II) ovarian cancer are few, partly because of the fact that most ovarian cancer is diagnosed in stage III or IV. As detection methods improve and more women are diagnosed early, researchers will need to explore the treatment and survival trajectory of early-stage survivors.

Survivorship is a process. The dominant metaphor in survivorship has been that of buying time; however, the literature offers little insight on the impact of survival on many aspects of a patient's life (Breaden, 1997). Application of the methods and findings used to study similar illnesses, effects on marital relationships, workplace issues, and social aspects of survival suggest areas for future research in ovarian cancer survivors.

Research regarding the period between recognition and diagnosis of ovarian cancer is scarce. Anecdotal information confirms that the diagnosis of cancer brings about feelings of vulnerability and being alone and lost. Women report anger, fear, avoidance, and denial, not only as early symptoms develop but up until pathology is confirmed. Similarly, the psychological dependence on laboratory values, specifically CA-125, as well as radiologic examinations, positron-emission tomography scans, and magnetic resonance imaging, is magnified. Research about cognitive dysfunction in long-term ovarian cancer survivors also is needed.

Lymphedema has long been known as a major, debilitating, long-term side effect of breast cancer (Brennan, 1992; Carter, 1997; Gil et al., 2004). Anecdotal evidence suggests that lower-body and lower-limb lymphedema plagues many ovarian cancer survivors as well. Yet studies of lymphedema in ovarian cancer are essentially absent in published literature. No systematic study, as yet, has established a relationship between the extent of debulking surgery to treat ovarian cancer and degree of lymph node sampling and the severity of lower-body lymphedema. Further research is needed to document the experience of lymphedema for patients with ovarian cancer who are long-term survivors.

Improved or extended survival for this population warrants a new emphasis in research so that healthcare providers can understand long-term consequences for women who undergo not only major debulking surgeries but who also are subjected to multiple and aggressive courses of cytotoxic medication. A shift has occurred in treatment planning for patients with ovarian cancer—from instructing them to “get their house in order” to living their life. Healthcare providers can have a pivotal role in the survivorship process. The phrase “health within illness,” a concept found in the HIV/AIDS literature, describes the increased meaningfulness of life (Cochrane, 2003). Application of “health within illness” has not been studied specifically in the cancer population at large, let alone patients surviving ovarian cancer.

Advanced treatment protocols and increasing awareness spurring earlier detection have extended survivorship for patients with gynecologic cancer beyond the magical five-year mark. At the same time, women with ovarian cancer are at high risk for experiencing multiple and concurrent symptoms that reduce QOL and magnify the burden of illness for ovarian cancer survivors and their families. This review suggests several under-investigated areas for future research related to ovarian cancer survivorship and symptom experience. Improving symptom management is crucial to bringing quality to extended life and is a critical factor in reducing the burden of cancer.

Conclusion

Nursing knowledge about the survivorship of women with ovarian cancer is in its early development. According to the 2003–2005 Oncology Nursing Society Research Agenda, the inclusion of people under active treatment for cancer and long-term survivors are listed as priorities (Berger et al., 2005; Berry, 2003). Such research is necessary to provide the basis for recognizing and treating specific symptoms in long-term ovarian cancer survivors. However, a committed effort clearly is necessary to fulfill this research agenda. The President’s Cancer Panel 2003–2004 Annual Report titled *Living beyond cancer: Finding a new balance* (NCI, 2004) further reinforces the need to expand research on long-term survival and ovarian cancer. The report sharing the issues and concerns of nearly 200 people dealing with the cancer experience lends credence to the fact that there are many unmet healthcare needs during survival. The end of cancer treatment is not the end of the cancer experience because living with a history of cancer means finding a new balance (NCI). Through research and better understanding, nursing can assist in helping ovarian cancer survivors find that balance.

Author Contact: Suzy Lockwood-Rayermann, RN, PhD, can be reached at s.lockwood@tcu.edu, with copy to editor at ONFEditor@ons.org.

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