Patterns of Symptoms in Women After Gynecologic Surgery

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Patients with cancer experience a variety of symptoms as a result of their disease and treatment. Management of multiple symptoms has been a priority of symptom research for a number of years and remains an important topic (Oncology Nursing Society, 2005). Studies about multiple symptoms in women with gynecologic cancers are limited compared to common cancers such as breast or lung (Ahlberg, Ekman, & Gaston-Johansson, 2005; Donovan & Ward, 2005). Importantly, most women with ovarian or uterine cancers experience severe symptoms because of advanced disease and aggressive treatment (Rubin, 2001); therefore, a need exists to study symptoms in women with gynecologic cancers.

Background and Significance

Gynecologic cancers include several types. Ovarian cancer, the ninth most common cancer in women, is the fifth leading cause of gynecologic cancer deaths in women in the United States (American Cancer Society, 2009). Women with ovarian cancer experience severe symptoms over time because of the advanced stage of disease at diagnosis and treatments. Treatment of ovarian cancer involves radical abdominal and pelvic surgery and debulking, typically followed by combination treatment with chemotherapy drugs for five to six months that can cause neuropathy and other unpleasant and debilitating symptoms (Martin, 2007). Despite treatment, women with ovarian cancer often decline and suffer physically. Psychological-related symptoms also occur because of an uncertain prognosis and decreased quality of life (QOL) (Rubin, 2001; Salzberg et al., 2005). For uterine cancer, adjuvant pelvic radiotherapy after radical surgery causes various side effects (mainly gastrointestinal), including fatigue, nausea, vomiting, and lack of appetite (Caffo et al., 2003). Available descriptions of symptom experiences are limited in women with uterine cancer and other gynecologic cancers after surgery (Ahlberg et al., 2005; Donovan & Ward, 2005). Symptoms after surgery in women with gynecologic cancers, particularly ovarian cancer, are poorly understood.

Purpose/Objectives: To explore patterns of symptoms over time and the relationships between selected demographic and clinical characteristics.

Design: Secondary analysis of longitudinal data.

Setting: A hospital and comprehensive cancer center in the northeastern United States.

Sample: 66 women with gynecologic cancers, postsurgical, and scheduled to receive chemotherapy.

Methods: A secondary analysis using descriptive and general estimating equation statistical procedures was conducted on symptom and disease data in a subset of a larger nursing intervention study.

Main Research Variables: Demographic and clinical variables including cancer site, new diagnosis or recurrence, stage, treatment, comorbidities, emotional distress, use of a symptom management tool kit, and 10 symptoms over time.

Findings: Two patterns of symptoms were identified. The first pattern (pain, bowel dysfunction, disturbed sleep, depression, nausea, and lack of appetite) decreased, and the second pattern (fatigue, anxiety, hair loss, and numbness) remained constant over time. The total number of symptoms decreased over time. Factors associated with symptoms, such as the use of a tool kit and emotional distress, were identified.

Conclusions: Tool kit use by women who experienced fatigue, bowel dysfunction, and anxiety suggests its usefulness as a self-care guide. Explanations for the two patterns of symptoms are discussed.

Implications for Nursing: Postsurgical management should include management and monitoring of symptoms associated with treatment. Screening for emotional distress is recommended in this population. Use of the tool kit could be an effective postsurgical management strategy for women with gynecologic cancers.

The literature was reviewed to summarize symptoms reported by women with gynecologic cancers. Eleven symptoms (pain, fatigue, bowel dysfunction [combined constipation and diarrhea], depression, anxiety, disturbed sleep, hair loss, numbness, nausea, lack of appetite, and sexual activity or fertility issues) were prominent (Ferrell, Smith, Cullinane, & Melancon, 2003; Fox & Lyon, 2007; Lakusta et al., 2001; McCorkle, Pasacreta, & Tang, 2003; Sun et al., 2005). However, few studies discussing symptoms included only women with ovarian cancer; assessed symptoms more than once, which does not reflect the fact that most women with ovarian cancer receive several cycles of chemotherapy over time after surgery; and discussed important symptoms such as neuropathy. Therefore, the studies reporting the symptom experience in women with ovarian cancer are limited in number and design.

Some causal linkages between specific symptoms and their associations with demographic and clinical variables have been found in patients with common cancers such as breast, lung, prostate, or colon cancer. Stage of cancer at diagnosis was associated with the number of symptoms within a cluster (Gift, Jablonski, Stommel, & Given, 2004). Age was independently associated with symptom prevalence in 1,000 patients with advanced cancer (Walsh, Donnelly, & Rybicki, 2000). Treatment was significantly associated with symptoms in general cancer research (Doyle et al., 2006). Comorbidities also were associated with symptoms and mortality in older adult patients with cancer (Extermann & Hurria, 2007). In patients with ovarian cancer, those on first-line chemotherapy had fewer symptoms than patients on second- or third-line chemotherapy (Sun, Ramirez, & Bodurka, 2007). Radiotherapy was highly effective in palliating symptomatic ovarian cancer (Choan, Quon, Gallant, & Samant, 2006) but is associated with fatigue (Holzner et al., 2003). However, in patients with advanced non-small cell lung cancer receiving chemotherapy, symptoms were very similar in younger (younger than 65 years) versus older (65 years or older) patients (Vansteenkiste et al., 2003). In 129 patients with lung cancer, no association between stage of cancer and symptom severity was found (Kurtz, Kurtz, Stommel, Given, & Given, 2000). Examination of the associations between antecedents and symptoms offers useful information for clinicians to manage symptoms. However, some relationships are unclear and additional exploration is needed.

The purpose of this study was to describe the pattern of symptoms in women with gynecologic cancers and to examine the relationships between demographic and disease characteristics and symptoms.

Methods

A secondary analysis of longitudinal data was conducted. Secondary data often are longitudinal, allowing

Table 1. Demographic and Clinical Characteristics

Characteristic	X̄	SD
Age (years)	62.2	12.5
Distress thermometer score[a]	4.9	2.8

Characteristic	n	%
Stage		
Early (I or II)	18	27
Late (III or IV)	48	73
Cancer site		
Ovarian	39	59
Uterine or other gynecologic	27	41
Disease status		
New	51	77
Recurrent	15	23
Chemotherapy		
Yes	57	86
No	9	14
Radiation		
Yes	10	15
No	56	85
Use of symptom management tool kit		
Yes	41	62
No	25	38
Comorbid disease		
0	9	14
1	13	20
2	5	7
3 or more	39	59

N = 66
[a] Range = 0–10

the researcher to look for trends and changes over time, which provides an opportunity to contribute to additional knowledge development by examining existing data for a different purpose from the parent study (Castle, 2003).

The parent study was a randomized clinical trial testing the efficacy of a Specialized Nursing Intervention Program (SNIP) to enhance QOL outcomes and to evaluate outcomes on cost of care and survival in postsurgical women with gynecologic cancers (McCorkle et al., 2009). Women newly diagnosed with ovarian cancer following surgery with an expected survival of at least six months were recruited from Yale-New Haven Hospital and Yale Comprehensive Cancer Center in Connecticut. Because the parent study attempted to recruit all women scheduled for gynecologic surgery to rule out ovarian cancer, the final sample included a variety of gynecologic cancers, including ovarian, uterine, and other cancers metastasized to the ovaries and to the abdomen. The parent study received full institutional review board (IRB) approval. As a secondary data analysis, this current study obtained an IRB exemption.

Subjects in the intervention group received usual care plus SNIP. The attention control subset received usual care and the attention control intervention, which included the assessment of the symptoms by a research assistant with access to a symptom management tool

kit (Gift, Stommel, Jablonski, & Given, 2003). Patients in the subset received one home visit in the second week, two weekly calls at the third and fourth weeks, and monthly calls during the second through the sixth month after surgery (8th week, 12th week, 16th week, 20th week, and 24th week) by a consistent research assistant. Symptoms were assessed at each contact (eight times); the research assistant asked about the presence or absence of symptoms in the tool kit. If the subject answered "yes" to the presence of symptoms, the research assistant referred the subject to the tool kit page where information about symptom management and resources was located. Sixty-six women with gynecologic cancers in the attention control subset were identified, with the majority having ovarian cancer.

The tool kit, developed by Given et al. (2008), was based on a series of empirical studies of patients receiving chemotherapy (Kurtz, Kurtz, Stommel, Given, & Given, 1999). Each section of the tool kit describes, for the patient and the family, causes of the symptom, strategies for coping with it, managing the symptom, communication with healthcare providers, and information sources. In the authors' sample, every patient received the tool kit after surgery.

Variables and Instruments

Data in the parent study were deidentified by the use of an identification number. A separate access data file of the key variables was created. The file included only demographic and clinical variables (age, stage of cancer, cancer site, new diagnosis or recurrence, chemotherapy, radiation therapy, use of tool kit, comorbidities, and emotional distress) and symptoms according to the purpose of the secondary data analysis.

Demographic information, including age, was measured by self-report and was recorded on the patient history and family information form. Stage of cancer, site, new diagnosis or recurrence, and treatment with chemotherapy and/or radiation therapy were obtained from medical record reviews. Patient medical records were reviewed seven months after participants were enrolled in the study and completed the intervention. Data were extracted by two independent coders, and interrater reliability of 95% or better was achieved. The number of comorbidities was self-reported on the comorbidities index (0–20), which has been reported to have good reliability and validity (Berkman & Breslow, 1983). The report of contact form was developed specifically for this study, and patients reported whether they used the tool kit (yes or no). Given the small sample size in this study, only selected demographic and clinical characteristics identified in the literature were included.

Emotional distress was measured by the distress thermometer (DT). The DT, endorsed by the National Comprehensive Cancer Network ([NCCN], 2003), is a rapid method to evaluate patients' distress with a cutoff score of four. The DT is comparable to other gold standard instruments, including the Hospital Anxiety and Depression Scale, the Center for Epidemiological Studies–Depression Scale, and the State-Trait Anxiety Inventory–State Version (Akizuki, Yamawaki, Akechi, Nakano, & Uchitomi, 2005; Ransom, Jacobsen, & Booth-Jones, 2006). The DT, which has good reliability and validity (NCCN, 2003), is primarily used as a screening tool to determine the presence of emotional distress by asking patients, "How would you rate your emotional distress today on a scale of 0–10?" and asking them to complete a six-category problem list (practical, family, financial, emotional, spiritual, and physical) to identify

Table 2. Symptoms Over Time in Postsurgical Women With Gynecologic Cancers

Symptom	Week 2 (N = 66)		Week 3 (N = 55)		Week 4 (N = 61)		Week 8 (N = 58)		Week 12 (N = 61)		Week 16 (N = 58)		Week 20 (N = 59)		Week 24 (N = 58)		β
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	
Pain**	42	64	27	49	19	31	15	26	17	28	15	26	9	15	10	17	–0.09
Bowel dysfunction**	24	36	21	38	24	39	22	38	24	39	21	36	10	17	11	19	–0.05
Lack of appetite*	20	30	19	35	14	23	16	28	12	20	12	21	14	24	8	14	–0.04
Depression, sadness, and crying spells*	13	20	4	7	8	13	7	12	10	16	6	10	8	14	3	5	–0.04
Nausea*	13	20	11	20	13	21	13	22	8	13	15	26	10	17	3	5	–0.04
Disturbed sleep**	26	39	20	36	17	28	15	26	23	38	19	33	10	17	10	17	–0.05
Fatigue	40	61	35	64	30	49	31	53	38	62	33	57	38	64	22	38	–0.02
Anxiety, distress, and worry	13	20	11	20	8	13	5	9	8	13	5	9	6	10	8	14	–0.02
Hair loss	17	26	18	33	19	31	22	38	31	51	32	55	22	37	11	19	<–0.01
Numbness or tingling in hands or feet	10	15	13	24	11	18	10	17	15	25	17	29	16	27	11	19	0.01

* p < 0.1; ** p < 0.01

Note. Generalized estimating equation was used to examine the relationship between individual symptoms and time.
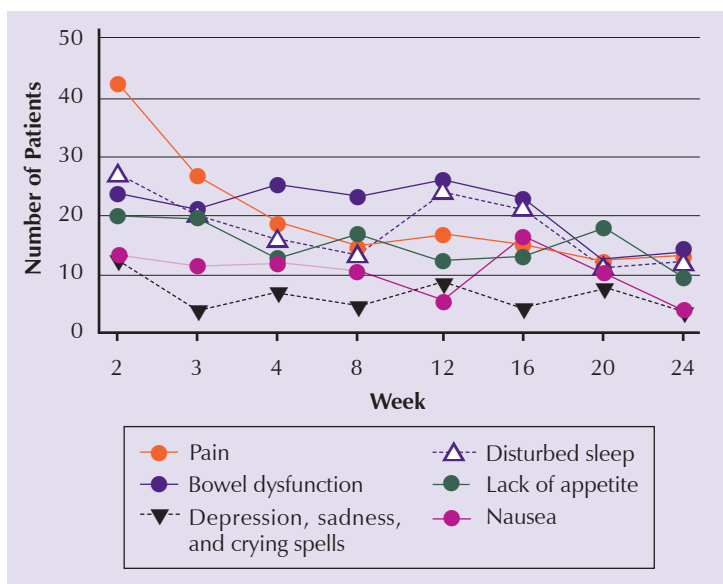
Figure 1. Pattern of Symptoms That Decreased Significantly Over Time in Women With Gynecologic Cancers

the types of issues causing distress. Symptoms were assessed with a self-report symptom checklist that corresponded to the symptoms listed in the tool kit. The symptom tool kit was developed by Given et al. (2008) over a series of clinical intervention trials and was validated through literature reviews, expert panels, and patient reports. In addition, the tool kit has been used effectively in several clinical studies (Given et al., 2008). Ten common symptoms (pain, fatigue, bowel dysfunction, depression, anxiety, disturbed sleep, hair loss, lack of appetite, nausea, and numbness) in women with gynecologic cancer were assessed with the symptom checklist at each contact. Only one prominent symptom, fertility or sexual activity, was missing from the checklist and tool kit and was not included in the assessment.

Statistical Procedures

Data were analyzed with SAS® 13.0 software. Descriptive statistics, including frequencies and percentages, were used to describe the demographic and clinical categorical variables (e.g., stage). Means and standard deviations were used to describe patients' ages, number of comorbidities, and emotional distress. Individual symptoms (e.g., pain: yes or no) were dichotomous variables, and the number of symptoms (0–10) was discrete count data. Both were used as categorical data.

General estimating equation (GEE) analysis of categorical outcome variables in longitudinal studies can be considered as longitudinal logistic regression analysis (Twisk, 2003). The GEE procedure was used to examine whether individual symptoms or total number of symptoms changed over time, and to

examine the relationships between demographic or clinical variables and symptoms. With backward selection methods in the GEE, the final model of predictors of each symptom was established.

Results

The mean age of the women was 62.2 years, ranging from 21–86 years (see Table 1). The sample (N = 66) included women with ovarian cancer (59%), uterine cancer (29%), and other gynecologic cancers metastasized to the ovaries and abdomen (12%), who were newly diagnosed (77%) or with recurrent disease (23%) at the time of enrollment. Most of the women (73%) were enrolled with late-stage (stage III or IV) disease. All women in this study had surgery and most of them received chemotherapy (86%); fewer received radiation therapy (15%). More than half of the sample (59%) reported having more than three comorbid diseases. The mean DT score was 4.91 (SD = 2.8).

Individual symptoms in postsurgical women with gynecologic cancers are reported in Table 2. The symptoms were divided into two patterns according to results of the GEE analysis. The first pattern of symptoms (see Figure 1) decreased significantly over time ($p < 0.05$), including pain (= –0.09, $p < 0.01$), bowel dysfunction (= –0.05, $p < 0.01$), lack of appetite (= –0.04, $p = 0.01$), depression (= –0.04, $p = 0.05$), nausea (= –0.04, $p = 0.03$), and disturbed sleep (= –0.05, $p < 0.01$). The second pattern (see Figure 2), fatigue (= –0.02, $p = 0.13$), anxiety (= –0.02, $p = 0.25$), hair loss (< –0.01, $p = 0.93$), and numbness (= 0.01, $p = 0.44$), did not change significantly over time ($p > 0.05$). None of the symptoms increased significantly over time. The total number of symptoms decreased over time (see Table 3).
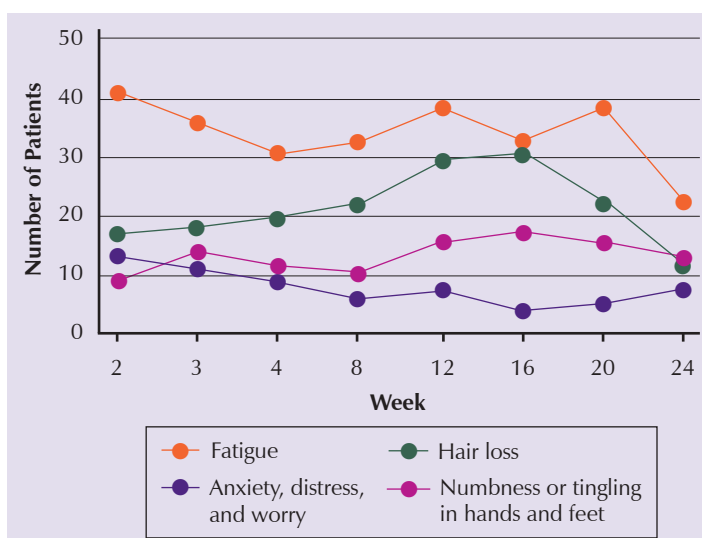
Figure 2. Pattern of Symptoms That Did Not Significantly Change Over Time in Women With Gynecologic Cancers

The relationships between demographic or clinical variables and each symptom are reported in Table 4. Younger women had significantly more depression, nausea, and disturbed sleep; numbness was more predominant in older women. Emotional distress was positively associated with pain, fatigue, depression, anxiety, and the number of symptoms. A new cancer diagnosis was associated with less fatigue, bowel dysfunction, numbness, and total number of symptoms. Stage had no predominant association with symptoms.

Chemotherapy also was positively and significantly associated with many individual symptoms, with highly significant relationships between chemotherapy and hair loss, numbness, and the total number of symptoms. The use of the tool kit was related to fatigue, bowel dysfunction, anxiety, and the number of symptoms.

Discussion

Two patterns of symptoms were identified. The first pattern, including pain, bowel dysfunction, nausea, lack of appetite, and depression, decreased over time and was most likely associated with the consequences of surgery (Otto, 2001). These symptoms improved with time, consistent with the natural course of women recovering from surgery. Postsurgical pain is expected to decrease over time as wound healing occurs. Portenoy et al. (1994) reported that the prevalence of pain in women with ovarian cancer undergoing treatment decreases over time, although a portion of patients still have cancer-related pain because of recurrence and spread of the disease (National Cancer Institute, 2008). Several factors, including neurologic, anatomic, hormonal, pharmacologic, and psychological, affect the occurrence of constipation and other gastrointestinal complaints after abdominal or pelvic surgery; however, patients are expected to recover surgically, and chronic constipation or diminished appetite is rare (Clemens & Klaschik, 2008). Although patients receiving chemotherapy experience nausea and lack of appetite, the routine use of antiemetic drugs in patients with cancer during chemotherapy controls these symptoms (Otto, 2001); therefore, it is understandable that nausea and lack of appetite decreased over time in this study. Depression, a reaction to loss (cancer diagnosis and surgery), is expected in some women after hysterectomy (Snaith, 2003) and decreases over time. Disturbed sleep is not typically considered a postsurgical symptom because, with decreasing pain and depression during postsurgical recovery, sleep would likely improve (McCracken & Iverson, 2002).

The second pattern of symptoms (fatigue, anxiety, hair loss, and numbness) is most likely associated with chemotherapy and radiation therapy and did not change over time. Although fatigue associated with surgery improves over time, fatigue because of early onset of chemotherapy and radiation therapy after surgery remains the most distressing symptom in women with gynecologic cancer (Holzner et al., 2003; Lakusta et al., 2001). Of note, fatigue did not increase over time. Although depression decreased over time, anxiety did not. Depression is the reaction to loss, but anxiety is a reaction to changes anticipated in the future (Snaith, 2003). Women with gynecologic cancers are likely anxious about chemotherapy and radiation and the recurrence of disease during their postsurgical treatment. Therefore, that anxiety did not improve during the six months after surgery is not surprising. Hair loss, a typical side effect of chemotherapy, also does not decrease before the completion of chemotherapy (Otto, 2001). Numbness, a symptom of neuropathy, did not decrease. In fact, it increased slightly, although not significantly, which might be because of the cumulative effect of the chemotherapy drugs. Neuropathy is a common symptom in women with gynecologic cancers during chemotherapy and radiation therapy (Wenzel et al., 2002). Although only some symptoms decreased, the total number of symptoms decreased. Given that the sample in this study consisted of a majority of women treated in the outpatient setting who received an added intervention to usual care, the fact that they had a fewer number of symptoms compared to what has been reported in the literature is not surprising (Donovan & Ward, 2005; Sun et al., 2007). Emotional distress, treatment with chemotherapy, and tool kit use were the main demographic and clinical variables significantly associated with the majority of individual symptoms and total number of symptoms.

Emotional distress was associated with pain, fatigue, depression, anxiety, and the number of symptoms in this study. A significant association between psychological distress and cancer pain (Badr, Basen-Engquist, Carmack Taylor, & de Moor, 2006) and a positive association between psychological distress and post-treatment fatigue (Norton et al., 2004) have been reported. That emotional distress was associated with depression and anxiety over time was not surprising in

Table 3. Total Number of Symptoms Over Time in Women With Gynecologic Cancers

Week	$\overline{X}$	SD	Median	Range
2	3.3	2.2	3	0–9
3	3.3	1.9	3	0–8
4	2.7	2	3	0–8
8	2.7	2.2	2	0–8
12	3.1	1.9	3	0–8
16	3.1	2.3	3	0–9
20	2.4	1.9	2	0–9
24	1.7	1.6	1	0–5

Note. Generalized estimating equation was used. Parameter estimate is $\beta = -0.02$, $p < 0.01$.

Table 4. Relationships Between Demographic and Clinical Variables and Symptoms

Variable	Symptom	β	p
Emotional distress	Pain	0.29	< 0.01
	Depression	0.19	0.01
	Fatigue	0.11	0.05
	Anxiety	0.17	0.01
	Total number of symptoms	0.07	< 0.01
No chemotherapy versus chemotherapy	Pain	–0.82	0.05
	Bowel dysfunction	–3.49	< 0.01
	Nausea	–2.3	0.03
	Disturbed sleep	–1.97	0.01
	Hair loss	–3.57	0.01
	Numbness	–4.45	< 0.01
	Total number of symptoms	–1.22	< 0.01
Age 65 years or younger versus older than 65 years	Depression	–0.04	< 0.01
	Nausea	–0.04	< 0.01
	Disturbed sleep	–0.03	0.02
	Numbness	0.05	< 0.01
No use of tool kit versus use of tool kit	Fatigue	–0.61	0.04
	Bowel dysfunction	–0.94	< 0.01
	Anxiety	–0.79	0.04
	Total number of symptoms	–0.24	0.02
New diagnosis versus recurrence	Fatigue	–0.74	0.03
	Bowel dysfunction	–0.71	0.05
	Numbness	–0.92	0.05
	Total number of symptoms	–0.26	0.04
Other gynecologic cancers versus ovarian cancer	Fatigue	–0.7	0.02
No radiation versus radiation	Bowel dysfunction	–1.04	0.01
	Numbness	–1.29	0.03
	Total number of symptoms	–0.34	0.01
Comorbidity	Disturbed sleep	–0.69	0.05
Early stage versus advanced stage	Numbness	1.11	0.04

this study. In terms of number of symptoms, Portenoy et al. (1994) found that psychological distress among patients with ovarian cancer was significantly correlated to the number of physical symptoms that the women experienced.

Chemotherapy drugs (paclitaxel, docetaxel, and cisplatin) used to treat gynecologic cancers are associated with neuropathy as a side effect (Quasthoff & Hartung, 2002). Neuropathy can present as pain and numbness in the hands and feet in women with gynecologic cancers (Otto, 2001) because of the cumulative effects of chemotherapy (Andersen et al., 2006). The relationship between chemotherapy and radiation and bowel dysfunction also is supported (Carlsson, Strang, & Bjurstrom, 2000; Lakusta et al., 2001). Hair loss and nausea are common side effects of chemotherapy. Given the many side effects of chemotherapy, patients receiving chemotherapy had a greater number of symptoms than patients who were not receiving it.

The tool kit is a self-care guide for symptom management. Patients who had fatigue and bowel dysfunction used the tool kit more often. The findings of this study suggested that when women felt tired, they used the tool kit. Anxious women also used the tool kit more often than those who were less anxious. As discussed previously, anxiety was a reaction to the unknown effect of the treatment and the possibility of disease recurrence. With such an uncertain situation, it is understandable that women in this study used the tool kit for self-management guidance. Also, the use of the tool kit was reinforced monthly by the research assistant. The more symptoms a woman reported, the more likely she was to use the tool kit; this is consistent with Chiang (1998), who reported that the number of symptoms was associated with mastery of help-seeking behavior in women with breast cancer.

Limitations

This sample included women with varied gynecologic cancers. Future studies should evaluate the pattern of symptoms in a more homogeneous sample. The symptom information available for this study had no data available about the severity of symptoms and sexual activity or fertility, a prominent symptom reported in the literature in women with gynecologic cancers during therapy. Only 66 patients with gynecologic cancers provided data over a six-month period for this study, although this was an acceptable sample size according to requirements for sample size in longitudinal studies. Another limitation is that patients in this study received the attention control intervention, which included the use of the tool kit, symptom monitoring, information, and telephone follow-up. That level of cancer care is not usual throughout the United States. As a result, this study has limited generalizability and the results might not be suited to other women with gynecologic cancers after surgery.

Implications for Nursing

This study found two patterns of symptoms consistent with treatment for gynecologic cancers: those related to surgery and those related to chemotherapy and radiation therapy. The patterns represented frequent occurrences of different and related symptoms as treatments changed. For this population, nurses must be alert to multiple symptoms and plan for both patterns. Given the prevalence of initial pain and fatigue in postsurgical women with gynecologic cancers in this study, patients

would benefit from close systematic and scheduled monitoring. The findings of the current study underscore the need to anticipate pain and fatigue in the early postsurgical period and beyond, and to offer adequate management, which corresponds to the previous literature (Bower, 2005; Doyle et al., 2006).

Emotional distress was above the cutoff score for many of the women and was an indicator for later symptoms. Anxiety did not diminish over time for some of the women. Nursing assessment of women with gynecologic cancers should include physical and psychosocial components. Nurses can play a part in helping women understand the emotional reactions that may accompany life-threatening illness and its inherent losses (Fitch, Gray, & Franssen, 2000). Distress is very common in patients with cancer across diagnoses and across the disease trajectory (Carlson et al., 2004). Given the strong effect of postsurgical emotional distress in women with gynecologic cancer, psychological consultation might be considered in this population. Another important finding of this study was that the total number of symptoms decreased over time, but not fatigue, hair loss, and numbness, which were associated with chemotherapy or radiation treatment. In outpatient treatment settings, nurses should be alert to the persistence of fatigue, cumulative neuropathies, and the resulting potential for diminished physical func-

tion. Patients with ovarian cancer tend to minimize or not communicate concerns about their symptoms with their healthcare professionals (Donovan, Hartenbach, & Method, 2005) and, therefore, may prefer to self-manage their symptoms. The high percentage of tool kit use in this study suggested that patients engaged in self-management. The distribution of the tool kit or other guidelines that support self-care (i.e., strategies for coping with, managing one problem, and information source) is relatively easy to accomplish and is not expensive in terms of resources. Therefore, this approach is recommended as an evidence-based intervention for women recovering from gynecologic cancer surgery.

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