

The Experience of Patients With Cancer Who Develop Venous Thromboembolism: An Exploratory Study

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Venous thromboembolism (VTE) encompasses both deep vein thrombosis (DVT) and pulmonary embolism (PE) and affects as many as 60,000 Canadians and 1 in 1,000 Americans per year (Heit, Cohen, & Anderson, 2005). DVT occurs when a blood clot forms in the deep veins, most often in the lower limbs, whereas PE is the result of a DVT migrating to the lungs, which can be fatal. DVT also can lead to post-thrombotic syndrome (PTS) in about 50% of patients (Kahn & Ginsberg, 2002). PTS is characterized by chronic burdensome symptoms, including leg swelling and pain, and can lead to venous ulceration in severe cases (Kahn & Ginsberg, 2002).

VTE is one of the most common and costly complications of cancer (Geerts et al., 2008) and patients with cancer are at a four- to sixfold increased risk of developing VTE when compared to age- and sex-matched controls without cancer (Cunningham, White, & O'Donnell, 2006). As many as 50% of all patients with cancer with extensive disease will have VTE (symptomatic or not) observed by imaging procedures (Johnson, Walker, Sproule, & Conkie, 1999). In addition, the diagnosis of VTE in patients with cancer is associated with poor outcomes (Geerts et al., 2008). PE remains a leading cause of death in patients with cancer, and the probability of death for those who develop thromboembolic complications is twice as great as patients with other afflictions (Dolan & Fitch, 2007). Despite the serious nature of the medical threat posed by VTE on this population, until now, no published qualitative research has addressed patients' experiences of VTE while coping with cancer.

Purpose/Objectives: To better understand the experience of venous thromboembolism (VTE) from the points of view of patients with cancer during various stages of the cancer experience.

Research Approach: Qualitative, descriptive.

Setting: Various inpatient and outpatient units of a large urban university-affiliated hospital in Montreal, Quebec, Canada.

Participants: Purposive sample of 10 participants who were anticipating, had recently undergone, or were currently undergoing cancer treatment and who had received a VTE diagnosis within the past year.

Methodologic Approach: Semistructured interviews were transcribed verbatim. Thematic analysis of data revealed themes contributing to understanding the lived experience of VTE during cancer care.

Main Research Variables: The experience of patients with cancer who develop VTE.

Findings: Patients' initial reaction to VTE included VTE as a life-threat, past experience with VTE, and VTE as the "cherry on the sundae" in light of other cancer-related health issues. Patients' coping with VTE also included three themes: VTE being overshadowed by unresolved cancer-related concerns, VTE as a setback in cancer care, and attitudes about VTE treatment.

Conclusions: This study contributes new insight into the experience of patients with cancer who develop VTE. The most salient finding was that patients having no prior VTE knowledge experienced VTE as more challenging. Future studies comparing experiences with VTE across the various stages of cancer care are needed.

Interpretation: Study findings suggest that patient education about VTE would be useful for the initial reaction and subsequent coping phases of VTE, thus representing an important target area for nursing intervention.

Literature Review

Links Between Cancer and Thrombosis

Patients with cancer have an increased risk of developing VTE because of the effects of the tumor on each component of Virchow's triad; that is, the three main categories of risk factors thought to contribute to thrombosis: direct damage to blood vessel walls, changes to the coagulation cascade by neoplastic cells, and multifactorial venous stasis (Cunningham et al., 2006). The most thrombogenic cancers are brain cancer; adenocarcinomas of the lung, ovary, pancreas, colon, stomach, prostate, and kidney; and hematologic malignancies (Geerts et al., 2008).

Well-recognized iatrogenic aspects of cancer treatment have been noted and can further increase the risk of VTE, including surgery, treatment with estrogen-related compounds, chemotherapy, and the insertion of long-term central venous catheters (Linkins, 2008). Patients with cancer undergoing surgery have at least twice the risk of postoperative DVT and more than three times the risk of fatal PE than patients with other afflictions undergoing similar procedures (Geerts et al., 2008). In addition, supportive agents used to treat patients with cancer, such as erythropoietin, granulocyte colony-stimulating factor, and high-dose corticosteroids have been identified as risk factors for VTE in patients with cancer (Haddad & Greeno, 2006).

Significant differences exist between patients with cancer and patients with other afflictions with respect to VTE treatment choices. The average patient (without cancer) with VTE requires only short-term anticoagulation (Geerts et al., 2008). In contrast, for treatment of patients with VTE and cancer, consensus guidelines recommend the use of low molecular weight heparin (LMWH) self-injections for the first three to six months followed by indefinite long-term anticoagulation therapy, or until the cancer remits (Geerts et al., 2008). The long-term phase of anticoagulation can consist of either oral warfarin or subcutaneous LMWH self-injections, depending on physician recommendations and patient preferences, as each has inherent advantages and disadvantages. Treatment with oral warfarin requires frequent blood tests (daily or weekly at first) to monitor coagulation indices in contrast to LMWH self-injections, which provide a predictable absorption rate. However, oral warfarin is far less invasive than LMWH self-injections. Another consideration can be the relative cost of the medications, as warfarin is far less expensive than LMWH. In the Canadian province of Quebec, where the study was conducted, prescription drug insurance is compulsory, so the issue of cost is minimized.

Regardless of which course of treatment is chosen, patients with cancer still have a two- to fourfold increased risk of recurrent VTE when receiving anti-

coagulant therapy as compared to patients (without cancer) with VTE (Heit et al., 2000). They also have a two-fold higher risk of major bleeding (Prandoni et al., 2002). Paradoxically, most thrombotic and bleeding complications in patients with cancer and VTE occur when anticoagulant therapy is within the established therapeutic range (Prandoni et al., 2002).

Psychosocial Impact of Cancer

The negative psychological impact of cancer has been documented for decades (van't Spijker, Trijsburg, & Duivenvoorden, 1997). One study found as many as 18% of patients with cancer have high levels of anxiety, which is correlated with low quality of life (QOL) (Stark et al., 2002). In fact, as many as 45% of patients with cancer reported that the emotional effects of cancer are more difficult to cope with than the physical challenges of the disease (MacMillan Cancer Support, 2006). For example, a qualitative study involving 54 patients with cancer (with 19 distinct cancer types) who participated in focus groups discussing their psychosocial needs revealed that key points of emotional vulnerability and highest need for psychological support include time of diagnosis, treatment endpoints, and episodes of recurrence (Turton & Cooke, 2000). More specifically, these events along the cancer illness trajectory are marked by significant psychological distress and life disruption (Stanton, 2006).

Psychosocial Impact of Venous Thromboembolism

The literature suggests that VTE also represents a significant challenge to patients. In particular, research on QOL after venous thrombosis is extensive and the overall results of this research indicate that QOL in patients with VTE is lower than the QOL of the general population (Elman & Kahn, 2006; Fiandaca et al., 2006; Kahn et al., 2005; Kahn, Hirsch, & Shrier, 2002; Kahn, Solymoss, Lamping, & Abenhaim, 2000; van Korlaar et al., 2004).

In addition, two noteworthy studies have looked at the impact of VTE in the general population beyond QOL outcomes (neither of these studies specified whether any participants had a comorbid cancer diagnosis since limited exclusion criteria were provided). The first was a quantitative study of 123 first-time patients with VTE who were recruited at least four weeks postdiagnosis (Moore, Norman, Harris, & Makris, 2006). Although the primary aim of the study was to evaluate the Theory of Cognitive Adaptation in explaining adjustment to VTE, the findings also revealed elevated levels of anxiety and depression in patients' reactions to VTE.

The second article was a qualitative pilot study that examined the emotional reactions to VTE by patients with thrombosis (Etchegary et al., 2008). A convenience sample of 13 adult patients who had experienced VTE within

the past two years was used. Data analysis revealed that VTE had predominantly negative effects on various psychosocial aspects of participants' lives, including their emotions and behaviors. Most notable, however, was the finding that the degree of severity of the psychosocial impacts depended on the initial VTE timing; that is, whether participants were coping with other concurrent illnesses at the time of VTE onset. However, the other illnesses were neither named nor described.

Venous Thromboembolism and Cancer

The only published qualitative study that has examined VTE in the context of cancer did so through a narrow lens that aimed to determine the acceptability of treatment (long-term LMWH) in 40 patients receiving palliative care (Noble & Finlay, 2005). The results showed that the majority of participants found LMWH to be a positive intervention, and added that it was more acceptable than warfarin; the LMWH allowed patients freedom from frequent blood tests, and even provided them with optimism since they felt more proactively involved in their care and that their doctors had not "given up on them."

Research Question

The lack of studies on VTE in the context of cancer represents a considerable gap in knowledge and an important avenue for research given the high risk of VTE in patients with cancer and the serious threat it poses on the cancer care population from a medical standpoint. In light of past research demonstrating significant psychological sequelae related to either VTE or cancer independently, the current study aimed to understand the experience of VTE from the points of view of patients with cancer during various stages of the cancer experience. As such, this study asked the following research question: What is the experience of VTE among individuals with cancer before, during, or after cancer therapy?

Methods

Design

A qualitative, descriptive design was used to explore the experience of VTE in patients with cancer. Qualitative designs seek to understand an emic perspective with the focus being the participants' perception of the phenomenon (Morse & Field, 1995). The researchers collected data using tape-recorded semistructured interviews. Semistructured interviews allow a researcher to guide the interview and obtain specific information while still providing patients with the freedom to elaborate (Rubin & Rubin, 2005). The main interview questions are listed in Figure 1 and, throughout the interview, additional probing questions were used to encourage the partici-

pants to clarify or provide additional detail (Rubin & Rubin, 2005). The questions were developed by all four authors based on the study purpose, issues highlighted while reviewing the literature, and clinical experience with this patient population. Interviews were conducted from September 2009 to January 2010, and interviews were 35 minutes in duration on average. Approval for this study was granted from the Jewish General Hospital Ethics Review Board.

Recruitment

Purposive sampling was used to recruit patients who represented a wide range of characteristics (e.g., age, gender) and clinical presentations, including location of the cancer and type of VTE event (DVT versus PE). The inclusion criteria were patients who were at any stage of cancer treatment (i.e., before, during, or after treatment), who had been diagnosed with VTE (either DVT, PE, or both) within the last year after receiving a definitive cancer diagnosis, who were older than age 18 years, and who spoke English or French. Patients were excluded from the study if they were confused, cognitively impaired, or too acutely ill to participate. All participants provided informed consent, having been approached initially by a member of their treating team regarding participation, followed by a meeting with one of the researchers to review the consent form and answer any questions.

We are doing a research project to study what it is like for patients with cancer to have a (leg or lung) blood clot. We will be asking you a few questions regarding your experience. There are no right or wrong answers; it's really your experience that I am interested in knowing more about.

- Tell me about the events leading up to finding out that you had a [leg or lung] blood clot.
 - What was your reaction when you found out you had a [leg or lung] blood clot?
- What part of the overall [leg or lung] blood clot experience strikes you the most?
- Do you have any symptoms currently? (If prompting is needed: leg swelling, pain, shortness of breath)
 - Have these symptoms affected you? Could you describe?
- I understand you are taking blood thinners. What is that like for you?
- People being treated for cancer often hit bumps in the road. Does this ring true to you?
 - How big a bump in the road is your [leg or lung] blood clot to you?
 - How have you been coping with this bump in the road?
- What advice would you want to give someone going through a similar situation?

Figure 1. Interview Guide

Data Analysis

Thematic analysis, a process that involves encoding qualitative information and deductively identifying themes, was used to interpret the data. Thematic analysis was chosen because it allows an in-depth understanding of people's experiences of a shared situation (Boyatzis, 1998). As described by Polit and Beck (2008), analysis was conducted through close examination of transcripts to identify key statements, which were then highlighted and coded. Codes were defined, categorized, and compiled into themes. Categories were reviewed for overlap, compared between themes, and continually refined throughout the data analysis (Burnard, 1991).

Participant Characteristics

A total of 10 patients (five inpatients and five outpatients) aged 35–78 years, including four women and six men, participated. Morse (2000) noted that limiting the sample to no more than 10 participants is appropriate when a study method involves individual semistructured interviewing through which a large amount of rich data is collected. Participants had diverse types of cancer which had been diagnosed anywhere from 2–18 months prior to the interview, and were treated by different specialists. In addition, the participant group represented a variety of stages of cancer treatment; some had advanced disease, and some were undergoing active treatment, whereas others considered themselves to be in remission. Chart reviews were not used to corroborate the patients' understanding of the stage of their disease because the focus was on the patients' perceptions and views. Five of the participants had PE and the other five were diagnosed with DVT, all of which occurred in the past year. The majority of participants were being treated with anticoagulation therapy in the form of subcutaneous self-injections of LMWH at the time of interview, except one participant who was on oral warfarin. Two participants had been treated with an inferior vena cava (IVC) filter (see Table 1).

Results

Overall, the experience of VTE in cancer care was unique to each individual, but several commonalities emerged. Two main categories were identified from participants' accounts, and arising from those were themes that influenced the participants' experience. The first category, the initial reaction to VTE, involved three themes: seeing VTE as a life threat, having past experience with VTE, and viewing VTE as the "cherry on the sundae" in light of other cancer-related health problems. The second category involved coping with VTE, which also was influenced by three themes: VTE being overshadowed by unresolved cancer-related con-

cerns, perceiving VTE as a setback in cancer care, and holding certain attitudes about VTE treatment.

Initial Reaction to Venous Thromboembolism

Perception of life threat: An initial reaction of all participants was realizing VTE represented a life threat. That threat was compared to the threat posed by cancer in some participant accounts: "[PE] is not cancer but it's dangerous too, because with both you are playing with your life." One participant even contrasted the relative urgency of the threat posed by VTE with that of cancer:

There is an even greater feeling of urgency when you have a blood clot in the leg. While, with cancer, it will not develop in such a fulgurating manner that you are here one day and gone the next.

Some participants experienced distressing symptoms that contributed to their perception of VTE as life threatening. The most frequently mentioned severe symptom was that of breathlessness associated with PE. "The breathlessness was very striking. I asked myself whether I was going to die." Two participants thought they were having a heart attack. "All of a sudden I couldn't breathe . . . I didn't know what was happening. . . . They wrote in the chart that it was a possible heart attack." The second participant who reported acute symptoms of shortness of breath, left arm pain, and lightheadedness said, "I felt I was having a heart attack . . . that stress made [the symptoms] worse."

Past experience with venous thromboembolism: Feeling "surprised," "shocked," and "scared" were emotions encountered by many when receiving their diagnosis of VTE. The feelings were stronger in those who did not have any past experience with VTE. One participant who did not initially recognize her symptoms as dangerous said, "I almost died because I didn't know I had [PE], so thank God [the medical team] found it." Another participant said this about the moment the doctor told her she had a DVT: "During my cancer treatments, I was never told that there was a risk of getting a blood clot. I didn't know about it . . . I was pretty shaken up." Another also related how her lack of prior knowledge made her feel at diagnosis. "I have never heard of [VTE], so that's why I was so shocked." For these participants, receiving information about their diagnosis from healthcare providers was reassuring. "The word 'clot' evokes fear . . . but then I was explained the treatment and that made me feel secure."

In contrast to the reaction of those with no prior knowledge of VTE, those who had direct or vicarious experience with it were not shocked at all. Instead, they reacted with calm action by recognizing the symptoms, understanding that they required medical attention, and seeking help. One participant recounted, "I was

Table 1. Participant Characteristics

Participant	VTE Diagnosis ^a	Treatment	VTE Symptoms	Cancer Diagnosis ^a
64-year-old female	DVT (two months)	LMWH	Resolved	Colon (four months)
65-year-old male	PE (five months)	LMWH	Resolved	Lymphoma (five months)
78-year-old female	DVT (one month)	IVC Filter	Current	Cervical (11 months)
51-year-old female	PE (three days)	LMWH	Resolved	Uterine (two months)
69-year-old female	PE (seven months)	LMWH	Resolved	Uterine (eight months)
35-year-old male	DVT (one week)	Warfarin	Current	Thyroid (seven months)
44-year-old male	PE (one month)	LMWH	Current	Lymphoma (eight months)
48-year-old male	DVT (one year)	LMWH	Resolved	Large B-cell lymphoma (18 months)
59-year-old male	DVT (one week)	LMWH plus IVC filter	Resolved	Stomach (two months)
50-year-old male	PE x 2 (three years and six months)	Warfarin then LMWH	Resolved	Colon (11 months)

^a All times listed are times from diagnosis to interview.

DVT—deep vein thrombosis; IVC—inferior vena cava; LMWH—low molecular weight heparin injections; PE—pulmonary embolism; VTE—venous thromboembolism

out of breath and I said to my partner, ‘I think we are going to the hospital’ without panic because I knew that it was something that could be rectified effectively.” Yet another participant said of his reaction to symptoms, which he associated immediately with DVT, “I was not worried about much. I reacted rather coldly, but I didn’t hesitate. I knew I had to go to the hospital, to go to the emergency room.” Finally, one man who had experienced a previous PE said of his knowledge the second time around, “Knowing [that it is a PE] reassures you a little, nevertheless . . . I knew I needed to go to the hospital as fast as possible.”

The “cherry on the sundae”: The next initial reaction experienced by the vast majority of participants involved the perception of VTE as having added to their pile of health problems, which were mostly cancer-related. One participant said, “If I just had a thrombosis, it wouldn’t have been complicated,” and added sarcastically, “It was the cherry on the sundae.” Regarding his reaction to the diagnosis, another patient said, “I was like, ‘Oh, something more to deal with.’” Similarly, another said, “It was something on top of all the problems I was having, and it wasn’t necessary.” A fourth participant felt he had gone through enough already, saying “I had just come through an episode related to cancer and I found it was too much, you know? I didn’t need [the blood clot] in addition.” It was their perception of ensuing events, however, that determined how they coped with this additional issue.

Coping With Venous Thromboembolism

When cancer overshadows venous thromboembolism: In some cases, concern regarding VTE was overshadowed by unresolved cancer-related concerns. One participant who expressed significant distress with respect to the course of his cancer care treatment said

of his acutely symptomatic PE, “[The blood clot] didn’t stress me out. It happened after the situation I just told you about, which was awful, so [the clot] didn’t bother me as such. It’s nothing.” In another case, the participant expressed having unmet cancer information needs that were overshadowing any concern for the DVT. Despite her DVT having precipitated a hospital admission, her son (who was translating for her) revealed, “She thinks nothing about the clot. It is not worrying her because she has the other [cancer]. The information they give her about the blood clot—she doesn’t listen. . . . She keeps wanting information from the cancer doctor.” A third patient who had recently been diagnosed with advanced disease expressed concern for the emotional impact his cancer diagnosis would have on his family, whereas his DVT diagnosis did not have this psychologically disruptive effect. “What bothered me the most was having to announce the cancer to those I love because if I disappear. . . . Yet, for the clot, it was another dimension . . . [the clot] is not a problem.”

Venous thromboembolism as a setback in cancer care: On the other hand, many participants did view VTE as a significant setback in their cancer care and had difficulty coping. The two most common reasons for VTE being seen as a setback were lingering VTE symptoms preventing a return to normalcy after cancer treatment and VTE treatment interfering with their cancer care and other plans. The two participants who were experiencing different unresolved VTE symptoms had expected to return to normal after cancer treatment.

During chemo[therapy], I didn’t have any great nausea, and brachytherapy went well too. So I told myself, “Well, I’m going to overcome [the cancer],” but NO! Then I started to go down again.

The other participant said,

I didn't really get on an upswing, I had just finished the chemo[therapy] and I was saying, "yes, it's gone! But why aren't I feeling like I should?" You know, because you feel that when your cancer treatment is finished, that's it. That's all. You should be back to normal.

Clearly, both participants were having difficulty dealing with the physical setback of their initial VTE symptoms. In addition, the first participant said she felt "anguished" because her initial VTE symptoms never resolved to the point where she was anticipating the downward spiral of her health: "I cannot do anything . . . will I always continue heading in this regression?" The second participant expressed a similar disappointment with his lingering VTE symptoms when he said, "The lack of energy and being out of breath . . . it's just so frustrating. . . . Frustration of not being able to be where I should be, in my mind, you know?"

For those without lingering symptoms, it was the VTE event and its treatment consequences that acted as a setback in their plans. One participant stated he was only concerned with his DVT in that it posed a potential delay to his cancer treatment. "The fact that there were clots meant we couldn't operate on my leg. Not being able to operate the leg pushed back my radiation and chemo[therapy]. So, everything was shifted in time." In another case, the participant's PE happened during his transfer out of the hospital. "When I got to the rehab institute, all of a sudden I couldn't breathe . . . [the staff] sent me back to the emergency. . . . I've been here [at the hospital] for just under six months." A final participant recounted how a restriction on alcohol consumption related to his DVT treatment plan was keeping him from moving on after his cancer battle. "You expect to be able to celebrate and to put [the cancer] behind you. Well now, I cannot do that because I have to be moderate with my consumption."

Attitudes about venous thromboembolism treatment: When not perceived as a setback, attitudes about VTE treatment were beneficial in that they helped the participants adhere to their medication regimen. More specifically, participants viewed anticoagulant self-injections as a necessary, albeit unpleasant, duty. Many participants voiced a sense of obligation when discussing their daily self-injections. "I really don't feel like pricking myself, but if it's that or dying, well, I'd rather pick myself." Similarly, another participant expressed, "I don't like to stick myself, but I do it," and "The needles—it's painful but you have to do it." Underlying this duty was the belief that, "The blood thinners are doing their job," as stated by one participant. Another kept faith in the ability of the anticoagulants to resolve his lingering symptoms: "I have to trust that

the medication is working, even though I have been on it for two months and it doesn't seem to be."

Of note, all participants who had direct experience or indirectly gained knowledge of both LMWH injections and oral warfarin preferred the injections. The inconvenience of frequent blood tests was one of the two reasons given for their negative attitudes toward warfarin. "With the [warfarin], what was kind of crappy was that I had to do blood tests every two weeks. But with [LMWH], no need for blood draws." Still another participant currently on oral warfarin said, "It's a lot of appointments, continuous follow-ups . . . a lot of concessions." The second reason for preferring LMWH had to do with the dietary restrictions involved in taking warfarin. As one participant said, "Well, as long as [the doctor] doesn't put me on the rat poison, I'll be fine. . . . My food is really important to me." Another participant who had personally experienced both LMWH and warfarin treatments said, "With the [warfarin] you have to avoid eating all kinds of cancer-fighting vegetables. Given that I have cancer and I can't eat like I should . . . you know? With the [LMWH] it's a bit more logical."

Initially, all participants reacted by recognizing VTE as a life threat, particularly those with severe symptoms. Participants with previous VTE experience reacted with calm action, whereas shock, fear, and surprise accompanied those who experienced the event for the first time. For most, VTE was the "cherry on the sundae" of their cancer-related health problems, and difficulty coping occurred when VTE was seen as a setback in cancer care. In some instances, unresolved challenges in cancer care overshadowed any VTE concerns. Finally, attitudes about VTE treatment favored patients' acceptance of the medication regime.

Discussion

The results of this study provide novel insight into the psychological impact of VTE in the cancer population, a clinically significant group who have remained unstudied until now. The results also shed new light on the acceptability and preferences of VTE treatment in patients with cancer, a topic that has been limited to a single publication that focused on the palliative oncology population.

An important theme that emerged from this study was the role that past experience with VTE played in the initial reaction of patients with cancer to this new diagnosis. Outside the context of cancer care, Etchegary et al. (2008) found disparities in the initial reaction to VTE similar to the current findings, but did not identify past experience as a contributing factor. In the current study, patients with cancer with either direct or vicarious experience with VTE calmly recognized their

symptoms and sought medical attention, whereas those with no VTE knowledge felt shock, fear, and surprise at the time of diagnosis. Fortunately, most of the intense emotions were alleviated when information about VTE was given. That finding suggests that being armed with knowledge about VTE can lessen the initial psychological impact of the diagnosis, and may, in addition, contribute to better clinical outcomes by minimizing delay in seeking treatment. Given the heightened risk of VTE, arming patients with cancer with knowledge seems particularly important. Although general awareness of VTE among healthcare providers is improving, evidence suggests that patients' knowledge remains inadequate. For example, a study found that as many as 20% of hospitalized patients were unaware of VTE (Lesage, McGee, & Emed, 2008). More specifically, a study by Sousou and Khorana (2010) revealed that more than 50% of patients with cancer are unaware of the increased risk of thrombosis with malignancy, suggesting a serious knowledge gap and important avenue for nursing intervention.

A second important theme in this study involved the coping difficulties that arose with the dual diagnosis of VTE and cancer, particularly when VTE was experienced as a setback on the road to cancer recovery. That finding is in concordance with well established chronic illness literature showing that comorbidities have a negative impact on coping (Poon, Basford, Dowser, & Booth, 2003) and corroborates another study's finding that unspecified coexistent illness worsens the psychosocial impact of VTE (Etchegary et al., 2008) and further expands this view to include cancer. In addition, the current study offers an explanation why this "double whammy" perception occurs; patients expected a return to normal after their cancer treatment, a notion that was interrupted by the onset of VTE. Interestingly, psychosocial oncology literature has documented the "return to normalcy" expectation that many patients with cancer have when treatment is completed. Often, when that expectation is not met, well-being is negatively impacted (Winterling, Sidenvall, Gilmelius, & Nordin, 2009). Given this information, possessing knowledge about VTE might mitigate a decline in well-being for patients with cancer post-treatment. That represents yet another important argument in favor of patient education on the topic of VTE in cancer care.

Finally, the findings regarding patients' attitudes about VTE treatment have the potential to contribute to the favorable view on LMWH for VTE treatment in oncology. Evidence of improved clinical outcomes for patients with cancer on LMWH versus warfarin has been well established (Lee et al., 2003). Despite this, the burden of subcutaneous delivery of LMWH and its potential implications for QOL have led healthcare

providers to question the tolerability of such treatment in patients with cancer, particularly considering the lengthy time frame of three to six months or more (Debourdeau et al., 2008). In contrast, Noble and Finlay (2005) found evidence in the palliative oncology population that strongly supported patient acceptance and preference for LMWH treatment over oral warfarin. The current study's results support Noble and Finlay's findings.

Implications for Nursing Practice

This study suggests that patients with cancer could benefit from obtaining knowledge about VTE, particularly with respect to recognizing initial symptoms, options for coping with lingering ones, and the advantages and disadvantages of available treatment options. Nurses play a critical role in patient education about VTE (Morrison, 2006) and, as such, should be involved in promoting VTE awareness in patients with cancer as well. Nurses also should be aware that fear and shock in patients without prior knowledge of VTE may affect the timing of interventions such as information giving. Literature on patient education suggests that emotional readiness is an important factor in receptivity to information (Bastable, 2006). Finally, nurses should be sensitive to concerns about treatment delay and disappointment about the setback caused by VTE by providing patients with opportunities to express their feelings.

Study Limitations and Future Directions

A limitation of this study was the small sample size, which restricted the ability to distinguish differences among the various subpopulations in the sample. For example, variations in the experience of VTE could not be delineated at each individual stage of cancer care. Also, differences between patients with PE versus DVT, those on injections versus oral warfarin, and those with lingering versus resolved VTE symptoms could not clearly be distinguished. Either a future qualitative study focused on exploring these comparisons or a quantitative study with a larger sample size could better determine the potential differences or similarities in the perception of VTE within these subpopulations.

The current study only examined patients who had received their VTE diagnosis within the past year for reasons pertaining to accuracy of recall of the initial reaction. As such, the impact of longer-term anticoagulation, which is found frequently in the care of patients with cancer, could not be considered in this investigation. A longitudinal study could more fully elucidate the experience of VTE in cancer care by incorporating perceptions of managing long-term VTE treatment.

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