Gynecologic Oncology 152 (2019) 334–338

Contents lists available at ScienceDirect

Gynecologic Oncology

journal homepage: www.elsevier.com/locate/ygyno

The effect of art therapy on the quality of life in patients with a gynecologic cancer receiving chemotherapy☆

Sara Wiswell [a], Jeffrey G. Bell [b], Jennifer McHale [c], John O. Elliott [d,*], Kellie Rath [b], Aine Clements [b]

[a] Department of Obstetrics & Gynecology, Riverside Methodist Hospital, Columbus, OH, United States of America
[b] Department of Gynecologic Oncology, Riverside Methodist Hospital, Columbus, OH, United States of America
[c] Department of Integrated Cancer Care, Riverside Methodist Hospital, Columbus, OH, United States of America
[d] OhioHealth Research Institute, Columbus, OH, United States of America

HIGHLIGHTS

- Pre and post-QOL data (FACT-G) were collected on 16 patients receiving art therapy during chemotherapy treatment.
- We found a non-significant mean change in QOL of −3.7 points (95% CI: −10.7, 3.2, p = 0.270).
- Art therapy may help to prevent the typical decline in QOL during treatment.

ARTICLE INFO

Article history:
Received 14 September 2018
Received in revised form 12 November 2018
Accepted 16 November 2018
Available online 23 November 2018

Keywords:
Gynecologic cancer
Art therapy
FACT-G

ABSTRACT

Objectives. Most art therapy research has involved patients with malignancies other than gynecologic cancer. The current study aimed to assess the impact of an art therapy intervention on the quality of life (QOL) in patients with gynecologic cancer who were receiving chemotherapy.

Methods. This was a prospective, non-randomized, pilot study. Eligible patients had a primary or recurrent gynecologic malignancy scheduled to be treated with at least 6 cycles of chemotherapy over 18 weeks. The intervention consisted of five sessions of art therapy during the chemotherapy. Patients completed a Functional Assessment of Cancer Therapy-General (FACT-G) questionnaire prior to starting chemotherapy, and again at completion of the fifth session. Differences between the FACT-G scores were examined by paired *t*-tests. An increase in the mean FACT-G score indicated an improvement in QOL. At each session, the patients completed a separate, supplemental questionnaire to subjectively rate the benefit of the session and to express their experience with the art intervention.

Results. Twenty-four patients enrolled. Eight did not complete the study, leaving 16 evaluable patients. The mean FACT-G score pre-chemotherapy was 82.3 (95% CI: 75.5, 89.2), and post-art therapy was 78.6 (95% CI: 71.7, 85.5). The mean change in QOL was −3.7 points (95% CI: −10.7, 3.2, p = 0.270). A supplemental questionnaire indicated that 15 of 16 patients felt that art therapy was beneficial at each session.

Conclusions. FACT-G scores did not significantly change over the course of chemotherapy in patients with gynecologic cancers receiving art therapy. Several published studies have indicated that chemotherapy is associated with a decline in QOL. Our results suggest art therapy may help to prevent or mitigate this decline.

1. Introduction

Receiving the diagnosis of a gynecologic cancer can be emotionally devastating, thus affecting patients' quality of life. Multimodality treatment may include surgery, radiation, and chemotherapy, all of which impact QOL. Research on QOL in cancer patients continues to grow, and it is certainly an important component of evaluating the overall treatment of these women [1]. Previous research suggests that chemotherapy is associated with a decline in QOL [2,3] with the most significant reductions in the physical and social domains occurring in the first few weeks into initial treatment [4].

The use of complementary and alternative therapy is common; approximately 40% of U.S. adults without cancer [5], up to 85% of patients initially diagnosed with cancer [6], and 40 to 95% of patients with gynecologic cancers [7] use these modalities. Over the past twenty years art

☆ Disclosure: The authors declare no conflicts of interest.All authors participated in the conceptualization and design of the study, interpretation of the results as well as in the draft and revisions of the manuscript. All authors have approved the final draft for submission.

* Corresponding author at: Medical Education, Riverside Methodist Hospital, United States of America.
E-mail address: john.elliott@ohiohealth.com (J.O. Elliott).

https://doi.org/10.1016/j.ygyno.2018.11.026
0090-8258/

therapy, has been adopted as a complementary therapy by cancer centers and medical rehabilitation centers around the world [8]. However, a recent study found only 36% of inpatient institutions in the Northern part of our state offered art therapy as a treatment modality [9].

The majority of art therapy research has involved patients with breast cancer, hematologic malignancies and pediatric brain tumors [10–15]. Published studies differ widely in terms of the number of sessions (1–16), session length (45 min to 2.5 h), group size (individual or group) and method (drawing, painting, multi-media) [8]. Although literature reviews conclude that art therapy may improve cancer patients' mental health (anxiety and depression) [8], distress, fatigue, QOL and coping [16,17], no trials have evaluated creative arts therapies in gynecological cancer [18].

Our study aimed to assess the impact of art therapy intervention on the QOL in patients with gynecologic malignancy receiving chemotherapy. We hypothesized that directed art therapy would improve the patients' QOL over the course of chemotherapy as measured by the Functional Assessment of Cancer Therapy-General (FACT-G).

2. Patients and methods

This was a prospective, non-randomized, pilot study at a large community-based tertiary hospital system in the Midwest United States. Eligible patients had a primary or recurrent gynecologic malignancy and were scheduled to be treated with at least 6 cycles of chemotherapy over a period of at least 18 weeks at our institution.

A certified art therapist at our institution delivered the intervention. Certified art therapists obtain either Masters of Science or Masters of Arts in art therapy that includes training in psychotherapy. In addition, art therapists complete 1500 h of direct client contact, as well as 150 h of supervision with an art therapist holding the Art Therapy Registered–Board Certified (ATR-BC) credentials. Additional board certification can be obtained through the Art Therapy Credentialing Board exam.

2.1. Intervention

The intervention consisted of five sessions of art therapy during the course of chemotherapy treatments beginning with the second cycle. At the first cycle patients received introductions, education and completed baseline assessments. The five interventional sessions are consistent with those offered at our institution over the past decade. Each session with the certified art therapist was approximately 40–50 min, scheduled during chemotherapy infusions. The first session was a bridge drawing. The bridge drawing then served as a guide for the art therapist to direct the therapy for the next three sessions: “your door” collage, “feelings” printmaking, and mandala. The final session was a review of the patient's time and work created with the art therapist. The art therapy sessions are further described in detail below.

2.1.1. Bridge drawing

The patient received colored pencils, markers, oil pastels, and watercolor sticks and was asked to draw a bridge. She was asked where she envisioned themselves herself on the bridge and why, and to elaborate on details she included in the picture. The bridge was used as an assessment tool for the art therapist; how the patient approached this task helped to determine the order of the three additional art interventions (Supplementary digital material Fig. 1).

2.1.2. “Your door” collage

The patient was given the same art supplies as above, and instructed to create a doorway that “introduced herself to others”. The outside of the door (Supplementary digital material Fig. 2a) itself represented what she was comfortable showing anyone in public. Inside the doorway (Supplementary digital material Fig. 2b) she placed images from magazine collage materials that she felt represented who she is (interests, fears, things that are important to them). Unlike the door, she has control of who she lets enter her doorway to learn more about her. The purpose of the collage was to empower the patient to express herself.

2.1.3. “Feelings” printmaking

The patient was asked to identify 4 to 6 feelings she experienced over the last month, after which she was instructed to paint on gel plates to express each feeling. The purpose of this task was to help patients identify their emotions and express them through colors and brush strokes. (Supplementary digital material Fig. 3).

2.1.4. Mandala

The patient was given a piece of paper with a circle drawn on it, colored pencils, markers, oil pastels, watercolor stick and collage material. She decorated the circle starting from the center and working out. The purpose of the task was to have the patient relax and be creative. This often was the last art intervention and had the least directives from the art therapist (Supplementary digital material Fig. 4).

2.1.5. Final session

All of the created artwork was displayed on a wall in front of the patient during this session. She was guided to share her thoughts and feelings about their art therapy and their treatment.

2.2. Validated measures

Patients completed a FACT-G questionnaire prior to the first art therapy intervention at the start of chemotherapy, and again at completion of the sixth chemotherapy session. The FACT-G questionnaire is a validated QOL instrument with established cut points for minimally important clinical differences [19]. The FACT-G measures 4 domains: physical well-being (PWB), social/family (SWB), emotional (EWB), and functional well-being (FWB) [3,20,21]. Since only a few patients completed the sexual function question in the SWB subscale, that question was dropped. The overall FACT-G scores could range from 0 to 100.

2.3. Patient experience

In addition, after each session the art therapist gave the patient a supplemental questionnaire (created for this study) that asked how beneficial the session was to her on a scale of 1 to 10 (1 being not beneficial and 10 being extremely beneficial). This assessment included an open-ended question to allow the patient to comment on her experiences (Supplementary digital material Fig. 5). A research coordinator collected the completed questionnaire.

2.4. Statistical analyses

Prior data indicate that the difference in the FACT-G of matched pairs is normally distributed with a standard deviation of 10 points [20]. If art therapy is able to make a clinically meaningful difference of 7 points on overall FACT-G mean scores, we needed 18 patients who completed the study to be able to reject the null hypothesis that the FACT-G difference is 0 with power set at 80% and the Type I error probability set at 5%.

Descriptive information on the study subjects was tabulated. For patients completing the study, paired *t*-tests examined differences between the pre-intervention and post-intervention overall FACT-G scores as well as the FACT-G subscale scores. Statistical analyses used IBM SPSS Statistics version 19.0 (Armonk, NY) based on traditional two-sided tests with the alpha error set at 5%.

3. Results

Twenty-four patients enrolled. Eight did not complete the study: 3 had poor response from chemotherapy and entered hospice, one patient died from sepsis, one died from an unrelated accident, one

transferred care, and two withdrew due to chemotherapy side effects. Thus, there were 16 evaluable patients with an average time between the first and last art therapy session of 85.8 days (95% CI: 64.9, 106.7). There were no differences in demographics, clinical characteristics and other complementary treatments between patients who completed the study (completers) and those who did not (non-completers), although the small numbers in each group may not provide power to detect significant differences.

During the study 17 patients received some combination of platinum and taxane chemotherapy, 6 had chemo-radiation, and one received doxorubicin. Prior chemotherapy was noted in the history of 4 of the 16 patients who completed the study, and in 3 of the 8 patients who did not complete the study.

The mean age was 61.4 years, and the majority of the patients were married and Caucasian (Table 1). Most patients were being treated for either uterine or ovarian cancer (Table 2). Four of the five patients who reported the diagnosis of depression also stated that they had the diagnosis of anxiety (Table 2). The most common additional complementary treatments that patients electively used during the study were massage, therapeutic touch, and meditation (Table 3).

The mean FACT-G overall score pre-art intervention was 82.3 (95% CI: 75.5, 89.2), and post-intervention was 78.6 (95% CI: 71.7, 85.5). The mean change in QOL was −3.7 points (95% CI: −10.7, 3.2, $p = 0.27$). The mean pre- and post-art intervention scores for each of the four domains also did not significantly change (Table 4).

The supplemental questionnaire indicated that 15 of the 16 patients felt that art therapy was beneficial (score > 5) at each session: bridge drawing 8.9 (95% CI: 8.1, 9.7), your door 9.4 (95% CI: 8.7, 10.0), feelings 9.5 (95% CI: 9.2, 9.8), mandala 9.3 (95% CI: 8.8, 9.8) and the final review session was 9.6 (95% CI: 9.3, 10.0). The one patient who felt that art therapy was not beneficial at each session rated the first two sessions (bridge drawing and "your door collage") as 5, but then rated the last three sessions as 8–9. Almost all patients rated each session an 8 or higher.

Some of the reasons for benefit were the following: served as a distraction, encouraged positive thinking, helped to express feelings, helped to understand emotions, identified support systems, and explored spirituality. Some selected statements from the patients about the art therapy sessions are shown below:

"It is uneasy talking about my feelings, but art therapy has become a non-threatening way to do it."

"Opens one-self to explore their spirituality through creating visual symbols that have special meaning to one-self."

"Expressing the negative emotions makes room for positive and hopeful thinking."

"Art making was cathartic, and opened up a lot of conversations and tears."

"Art gave me a different perspective on treatment and life."

The art therapist made several observations during each art therapy intervention. The majority of patients drew a bridge from their childhood, near their current home, or one they had seen while vacationing. The patients reported that the bridge symbolized starting and finishing their chemotherapy, or the "challenges" in their lives. At the final session, the majority of the patients noted that the sessions helped to pass the time and provided a distraction from their disease and treatment. Several commented on how they were looking forward to each session, and focused on this as they drove to their chemotherapy treatment.

Table 1
Demographics.

Characteristic	
Age, mean ± sd	61.4 ± 11.5
BMI, mean ± sd	33.8 ± 10.4
Marital status, n (%)	
Married	11 (68.8)
Single	1 (6.3)
Divorced	1 (6.3)
Widowed	3 (18.8)
Race/ethnicity, n (%)	
African American/Black	0 (0)
Asian	0 (0)
Caucasian/White	15 (93.8)
Hispanic	0 (0)
Unknown/Other	1 (6.3)

Table 2
Clinical characteristics.

Characteristic	
Comorbid conditions, n (%)	
Diabetes	6 (37.5)
Chronic pain	2 (12.5)
Fibromyalgia	1 (6.3)
Depression	5 (31.3)
Anxiety	4 (25.0)
Bipolar disorder	0 (0)
Insomnia	2 (12.5)
Previous cancer	6 (37.5)
Current cancer type, n (%)	
Ovarian	5 (31.3)
Cervical	2 (12.5)
Fallopian	0 (0)
Uterine	8 (50.0)
Vaginal	0 (0)
Vulvar	1 (6.3)
ECOG status, n (%)	
0	10 (62.5)
1	5 (31.3)
2	1 (6.3)
3	0 (0)
4	0 (0)
Current medications, n (%)	
Anti-emetics	5 (31.3)
NSAIDS	3 (18.8)
Opioids	5 (31.3)
Sleep aids	1 (6.3)
Anxiolytics	1 (6.3)
Antidepressants	3 (18.8)
Nutritional supplements	10 (62.5)

4. Discussion

FACT-G scores did not significantly change over the course of chemotherapy in patients with gynecologic cancers receiving art therapy. Other published studies using the FACT-G instrument have indicated that chemotherapy is associated with a decline in QOL [2,3]. One prospective study of female cancer patients (75% gynecologic and 25% breast) noted reductions of 5 to 30 points in all QOL domains at 10–15 days into initial treatment with a 5 to 10 point reduction still noted at the 4th cycle of chemotherapy [4]. In fact, full recovery of QOL or improvement in all domains was not noted until 6 months to 1-year post-treatment.

Table 3
Other complementary treatments electively used during the study.

Characteristic, n (%)	
Massage	3 (18.8)
Therapeutic touch	2 (12.5)
Reiki	1 (6.3)
Tai Chi	0 (0)
Polarity therapy	0 (0)
Aromatherapy	1 (6.3)
Guided imagery	1 (6.3)
Meditation	2 (12.5)
Hypnosis	1 (6.3)
Acupuncture	1 (6.3)
Musical therapy	2 (12.5)

Table 4
FACT-G quality of life rating (n = 16).

Scale	Pre	Post	p-Value
	Mean (95% CI)	Mean ± (95% CI)	
Overall score	82.3 (75.5–89.2)	78.6 (71.7–85.5)	0.270
Physical well-being	22.4 (19.7–25.1)	19.9 (16.8–23.0)	0.091
Social/family well-being	23.9 (22.2–25.7)	23.5 (20.8–26.2)	0.714
Emotional well-being	16.2 (14.8–17.6)	16.4 (14.6–18.3)	0.815
Functional well-being	19.8 (16.5–23.0)	18.8 (15.9–21.7)	0.489

In our study, most post-intervention QOL domains remained within 1 point of baseline. Only the physical well-being domain dropped >1 point; however the −2.5 point reduction is less than what is considered the negative "minimally important difference" of −8.3 points (95% CI: −5.5, −11.7) based on the FACT-G [19]. This non-significant change in QOL scores suggests that our art therapy intervention may have helped to prevent such reported declines during chemotherapy treatment.

A recent art therapy intervention study in hematologic cancers found improved mood (based on the Positive and Negative Affect Schedule), reduced pain (based on the visual analogue scale) and improved anxiety (based on the State-Trait Anxiety Inventory) [22]. This non-randomized study had a similar design as the current investigation, so it was limited in its ability to establish cause and effect. The study also was limited to art making activities, as it was not delivered by certified art-therapists who are trained as mental health professionals.

One reason that our study may not have shown a significant change in QOL was it being non-randomized, thus unable to control for adverse variables such as prior chemotherapy and mental illness. In contrast, a randomized art therapy trial found significantly improved total health, total QOL, physical health and psychological health in breast cancer patients undergoing radiotherapy [14] based on the WHOQOL-BREF and EORTC Quality of Life Questionnaire-BR23. These studies raise the possibility that the FACT-G may be less suitable than other instruments in capturing the impact of art therapy.

Noteworthy is the fact that approximately a third of the patients self-reported diagnoses of mental illness (depression, anxiety). These comorbidities or medications (antidepressants and anxiolytics) may have influenced the effect of the art therapy. This type of comorbidity may be a variable worth investigating in future studies, and instruments with focused assessment of mood, anxiety, and other psychosocial domains may be better suited than the FACT-G to detect clinical improvement in QOL as supported in the literature [8,16,17].

The majority of our patients reported that art therapy was beneficial. How this feeling of benefit did not translate into improvement in some of the FACT-G domains, in particular the "emotional" domain, is a matter of speculation. One reason might be that the cohort was too small to detect a positive change in that domain. Despite the insignificant change in QOL scores, the value of art therapy to be subjectively helpful to each individual cancer patient cannot be underestimated. Other investigations have reported that the majority of patients found art therapy beneficial, one showing that 51 of 54 patients described art therapy as "helpful", concluding that patients use it "to fulfil their own different needs, whether it is a need to relax (improved mood) or to talk (self-narrative) or to visually express and elaborate emotions (discovering new meanings)" [23]. Again, based on our current study and previous literature, psychological well-being scales may better capture the emotional domain of patient reported outcomes from art therapy in cancer patients undergoing treatment. Qualitative research supports positive effects from art therapy on personal growth, coping, self-expression and social interaction [8]. This suggests quantitative measures of these domains would be worthwhile.

One strength of this study was limiting the cohort to patients with gynecologic malignancies, which reduced the heterogeneity of the sample population. However, there was a large degree of heterogeneity in terms of treatment type and what disease course the patients were in. Another strength is that only one art therapist performed the interventions, thus limiting variation in delivery of the intervention.

Some limitations of this study include a small sample size. Since we had a limited number of eligible patients at our institution, a randomized design was not feasible. The current study was powered to detect what we thought would be a clinically meaningful change in the FACT-G scores. Although 18 patients were necessary to complete the study in order to detect a 7-point difference in mean scores and we had 16 evaluable patients, results from an additional 2 patients would not have changed the lack of statistical significance even if those two patients experienced large improvements from their baseline QOL (i.e., FACT-G overall score pre-art intervention scores of 40 and post-art intervention scores of 100). The small sample size also limits the ability to look at any subgroups (i.e., completers versus non-completers, chemo-radiation versus chemotherapy alone, patients with recurrent disease versus primary disease, those with mental health diagnoses versus those without) as this would significantly increase type-I error rates (chances of finding spurious results).

Another limitation is that the art therapist provided patients with the questionnaire evaluating the benefit of each art therapy intervention. This could have introduced social desirability bias as the patients may have felt that they needed to respond positively to the art therapist. To address this limitation, patients were told a research coordinator would collect the survey and the art therapist would not review the responses. In addition, the patients were all from one Midwest hospital and the majority were married, Caucasian women, which limits the applicability of the study across other populations.

Despite the above limitations, our results suggest that art therapy may mitigate the adverse effects of chemotherapy on QOL in gynecologic cancer patients.

Future research in art therapy for cancer patients ideally should be based on a randomized design, which is lacking [8,16] especially in gynecological cancers [18]. In addition, using instruments that concentrate on emotional and psychological well-being may better capture improvements in QOL for oncology patients. We encourage more institutions to evaluate the usefulness of art therapy in their cancer patients.

Supplementary data to this article can be found online at https://doi.org/10.1016/j.ygyno.2018.11.026.

Authors' disclosures of potential conflicts of interest

The author(s) indicated no potential conflicts of interest.

Acknowledgment

The authors thank Shannon Crites and Marie Lockhart PhD for their assistance in patient enrollment and data collection. The authors also thank Gary Reid MD for allowing us to approach his clinic patients for enrollment into the study.

Author contributions

Conception and design: all authors.
Administrative support: Bell, Rath, Clements, Reid.
Provision of study materials or patients: Rath, Clements.
Collection and assembly of data: Crites, Lockhart, Elliott.
Data analysis and interpretation: Elliott, all authors.
Manuscript writing: all authors.
Final approval of manuscript: all authors.

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