


Palliative Medicine Referral and End-of-Life Interventions Among Racial and Ethnic Minority Patients With Advanced or Recurrent Gynecologic Cancer

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Abstract

Background: Referral to palliative medicine (PM) has been shown to improve quality of life, reduce hospitalizations, and improve survival. Limited data exist about PM utilization among racial minorities with gynecologic malignancies. Our objective was to assess differences in palliative medicine referrals and end of life interventions (within the last 30 days of life) by race and ethnicity in a diverse population of gynecologic oncology patients.

Methods: A retrospective cohort study of patients receiving gynecologic oncologic care at a tertiary referral center between 2017–2019 was conducted. Patients had either metastatic disease at the time of diagnosis or recurrence. Demographic and clinical data were abstracted. Exploratory analyses were done using chi-square and rank sum tests. Tests were two-sided with significance set at $P < .05$.

Results: A total of 186 patients were included. Of those, 82 (44.1%) were referred to palliative medicine. Underrepresented minorities accounted for 47.3% of patients. English was identified as the primary language for 69.9% of the patients and Spanish in 24.2%. Over 90% of patients had insurance coverage. Ovarian cancer (37.6%) and uterine cancer (32.8%) were the most common sites of origin. Most patients (75%) had advanced stage at the time of diagnosis. Race and language spoken were not associated with referral to PM. Black patients were more likely to have been prescribed appetite stimulants compared to White patients (41% vs 24%, $P = .038$). Black patients also had a higher number of emergency department visits compared to White patients during the study timeframe. Chemotherapy in the last 30 days of life was also more likely to be given to Black patients compared to White ($P = .019$).

Conclusions: Race was associated with variation in interventions and healthcare utilization near end-of-life. Understanding the etiologies of these differences is crucial to inform interventions for care optimization as it relates specifically to the health of minority patients.

Keywords

cancer, palliative care, health care, health care disparities, end-of-life, Gynecologic Oncology

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Background

Gynecologic malignancies will account for 115,130 of the new cancer cases diagnosed in the United States in 2022.¹ Most patients diagnosed with an advanced gynecologic malignancy have an incurable chronic condition that carries a large symptom burden, either directly related to the primary malignancy or due to complications related to treatment. In addition to the standard of care treatment for gynecologic malignancies, evidence supports simultaneous palliative medicine involvement in patient care to improve overall patient outcomes.²⁻⁵

Fauci et al reported that 58% of patients with gynecologic cancer received chemotherapy within the final 6 months of life, 7% received radiotherapy, 59% underwent at least one procedure for curative therapy, and 85% required one or multiple inpatient admissions.⁶ In the study by Soares et al patients who received chemotherapy in the last 30 days of life were more likely to visit the emergency department, undergo medical imaging, and die in the hospital compared to those who did not use chemotherapy,⁷ raising concerns about the futility of such interventions.

Despite the recognized importance of palliative medicine in cancer patients, studies on implementation and outcomes have minimal representation from minority groups. In a meta-analysis by Pirl et al examining racial and ethnic representation in studies of early palliative care involvement for patients with advanced cancer, only 75% reported ethnicity data, and less than half (38%) included African American (AA)/Black or Hispanic patients. Of those studies that included minority patients, the total number of patients included represented less than 25% of the cohort, and few focused specifically on gynecologic cancers.⁸ Cancer health disparities in women diagnosed with gynecologic cancers in minoritized populations have been well documented.⁹⁻¹¹ Given the paucity of data in the context of palliative care, it is important that further work is done to understand potential disparities among these populations. Our objectives were to evaluate patterns of referral to palliative medicine and to assess differences in end-of-life interventions among women with gynecologic cancers by race in a diverse patient population. If such differences exist, they may inform interventions for care optimization and elimination of structural barriers.

Methods

Ethics Statement

This study received ethics approval from the University of Miami (Human Subject Research Office (M809), 1400 NW 10th Avenue, Suite 1200A Miami, FL 33136), Protocol Approval Number #20200275. Given the design of the study, approval was obtained for both waiver of consent and full waiver of authorization.

Design, Setting and Participants

A retrospective review was conducted of patients treated for a gynecologic oncology (GYO) malignancy at Sylvester

Comprehensive Cancer Center (SCCC) during the years 2017-2019 with the following diagnoses: platinum resistant/refractory or recurrent ovarian cancer; advanced endometrial cancer (Stage III-IV) or recurrent disease; advanced cervical cancer (Stage III-IV) or recurrent disease; and advanced vulvar or vaginal cancer (Stage III-IV) or recurrent disease. The study timeframe of 2017 to 2019 was selected based on known tumor registry data from our clinic. This timeframe would allow for evaluation of 700 to 800 subjects with approximately 25% to 30% meeting inclusion criteria outlined above. Patients were excluded if they had multiple (two or more) active cancers, patients who did not meet the cancer stage criteria, and those were seen only once by the Gynecologic Oncology service (Figure 1).

Patient-specific information was obtained from the electronic medical record for all patients who met inclusion criteria, regardless of palliative medicine referral. Variables abstracted included: demographic information (age, race/ethnicity, personal country of origin, zip code, insurance type, familial country of origin, BMI, smoking status, illicit drug use), cancer related data (cancer type, stage, evidence of metastasis, emergency visits and hospitalizations), and palliative medicine related data. Specific data collected regarding palliative medicine for all subjects included: referral to palliative medicine (defined as an order placed into the electronic medical record in the outpatient or hospital-based setting), Eastern Cooperative Oncology Group (ECOG) performance score, referral indication (symptom management, goals of care, or both), and end of life (EOL) interventions such as chemotherapy and surgical interventions within the last 30 days of life. For evaluation of high-intensity care received during the end-of-life period, chemotherapy use within the last 30 days of life, surgical interventions within the last 30 days of life, hospital admissions, emergency department visits, as well as hospice referral were used. These factors were identified and selected based on published studies evaluating patients with cancer, including gynecologic malignancies.¹²⁻¹⁴

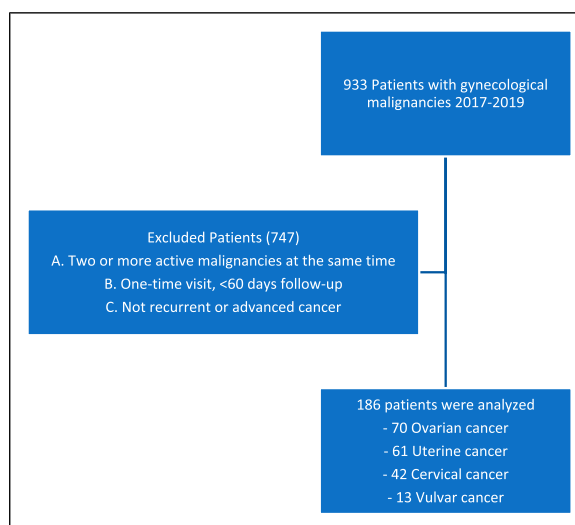


Figure 1. Inclusion and exclusion criteria.

Data Analysis

The sociodemographic and clinical data were summarized using descriptive statistics with total count and corresponding percentage. Chi-square analysis (or Fisher's exact, when appropriate), and Wilcoxon's Rank Sum Test were performed to assess study variables and referral practices to palliative medicine. All statistical analysis tests were two-sided with statistical significance set at $P < .05$. Statistical analysis was completed using IBM SPSS Statistics for Windows, version 28 (IBM Corp., Armonk, N.Y., USA).

Results

A total of 186 patients met inclusion criteria. Demographic data are shown in (Table 1). Most of the patients included in this study spoke English as their primary language (69.9%) with approximately 25% speaking Spanish. The mean age at diagnosis was 58 years. About half of the patients were White (49.5%), 24.7% were Black, and 22.6% were Hispanic. Ovarian cancer (37.6%) and uterine cancer (32.8%) were the most common diagnoses. Over 75% of patients had Stage III or IV at the time of diagnosis with abdominal or lymph node involvement being the most common sites of tumor spread (86% and 67.7%). Despite an advanced stage at diagnosis, over 50% of our patients had an ECOG score of 0-1 at the time of first contact.

Palliative medicine referral was provided to 82 (44.2%) patients with 67 (37%) ultimately seeing a palliative medicine provider. The most common indication for palliative medicine referral was symptom management (73%). Symptom management included any evaluation or visit for recommendations of care for malignancy related symptoms (pain, nausea, insomnia, etc.) (Table 1).

The use of analgesics, antiemetics and bowel regimens (cathartics) was high, and was reported in 84.4%, 76.3%, and 60.2% respectively. Prescriptions for agitation (41.4%) and appetite stimulation (28.5%) were less commonly provided. Sixty-seven percent (67%) of the cohort had at least 1-3 visits to the emergency department (ED) or hospitalizations, while more than 7 visits or hospitalizations were documented in 14.5% of the cohort. Chemotherapy and procedures in the last 30 days of life was noted in 5.9% of the cohort for both interventions. A total of 68 (36.6%) patients expired during the study interval (Table 2).

No significant associations were identified among various socio-demographic factors and a referral to palliative medicine among our cohort (Table 3). Patients who were referred to palliative medicine were more likely to be prescribed analgesics, antiemetics, medications for agitation, bowel regimen, and appetite stimulants than patients who were not referred (Table 4). A higher proportion of patients who were referred to PM were seen in the ED or admitted to the hospital across the treatment continuum. Palliative referral was also more common among patients

Table 1. Patient Demographics.

Variables		N (%)
Language spoken	English	130 (69.9%)
	Spanish	45 (24.2%)
	Creole	6 (3.2%)
	Other	5 (2.6%)
Age at diagnosis (Mean, SD)	58.35 (± 12.971) [min 21 – max 90]	
Race/Ethnicity	Asian	6 (3.2%)
	Black or AA	46 (24.7%)
	Hispanic or Latina	42 (22.6%)
	Unknown	1 (.5%)
	White	90 (49.5%)
BMI at diagnosis (Mean, SD)	26.7 (± 6.9) [min 14.12 – max 61.00]	
Last Available BMI	25.7 (± 6.8) [min 13.50 – max 63.60]	
Country of birth	USA	38 (20.4%)
	Foreign	41 (22%)
	Unknown	107 (57.5%)
Tobacco use	Yes	26 (14%)
	No	160 (86%)
Illicit drugs	Yes	5 (2.7%)
	No	181 (97.3%)
Insurance	Medicaid	16 (8.6%)
	Medicare	43 (23.1%)
	Private insurance	124 (66.7%)
	Other*	3 (1.6%)
Organ site	Cervix	42 (22.6%)
	Ovary	70 (37.6%)
	Uterus	61 (32.8%)
	Vulva	13 (7.0%)
Stage at diagnosis	I	17 (9.1%)
	II	23 (12.4%)
	III	66 (35.5%)
	IV	80 (43.0%)
Metastatic disease	Yes	176 (94.6%)
	No	7 (3.8%)
Palliative referral	Yes	82 (44.1%)
	No	104 (55.9%)
Referred and seen	Yes	67 (82%)
	No	15 (18%)
Reasons for referral	Goals of care	9 (10.9%)
	Symptom Management	60 (73.1%)
	Both	13 (15.8%)
ECOG 1st	0	62 (33.3%)
	1	48 (25.8)
	2	5 (2.7%)
	3	2 (1.1%)
	Unknown	69 (37.1%)

*Other (two with no insurance, one with Veteran Affairs insurance coverage). BMI kg/m² (Body Mass Index). ECOG (Eastern Cooperative Oncology Group).

who expired, with 69% (47/61) of them meeting with a palliative medicine provider at least once prior to expiration. Within the referral group, the mean time from referral to palliative medicine to time of death was 82 days (1-519). Over 31% of patients were referred to palliative medicine <30 days prior to end-of-life, with only 8.5% referred in the last 7 days of life (Table 5).

Table 2. Pharmacologic Classification of Drugs Used by Study Patients, Emergency Department and Hospitalization, and Interventions in Last 30 days of Life.

Variables		N (%)
Analgesic use	No	29 (15.6%)
	Yes	157 (84.4%)
Antiemetic use	No	44 (23.7%)
	Yes	142 (76.3%)
Agitation Medication use	No	109 (58.6%)
	Yes	77 (41.4%)
Appetite stimulant use	No	133 (71.5%)
	Yes	53 (28.5%)
Bowel regimen use	No	74 (39.8%)
	Yes	112 (60.2%)
Admissions to emergency department prior to palliative referral	0-3	125 (67.2%)
	4-7	41 (22%)
	8 or more	20 (10.8%)
Admissions After palliative visit	0-3	55 (29.7%)
	4-7	11 (5.9%)
	8 or more	4 (2.1%)
	Not referred or referred to hospice after or unknown	116 (63.4%)
Chemotherapy in last 30 days	Yes	13 (19%)
	No	55 (81%)
Procedure in last 30 days	Yes	11 (16%)
	No	57 (84%)
Patient expired	Yes	68 (36.6%)
	No	118 (64.3%)

Table 3. Socio-Demographic and Clinical Factors Associated With Palliative Medicine Referral.

Variable		No PM referral (N = 104)	PM referral (N = 82)	P value
Language spoken	English	69 (66.3%)	61 (74.4%)	.262
	Other	35 (33.7%)	21 (25.6%)	
Age at diagnosis	—	59 (\pm 12.6)	57 (\pm 13.3)	.378
Race	White	83 (79.8%)	57 (69.5%)	.125
	Black	21 (20.2%)	25 (30.5%)	
Country of birth	US born	23 (22.1%)	15 (18.3%)	.520
	Foreign	25 (24%)	16 (19.5%)	
	Unknown	56 (53.8%)	51 (62.2%)	
Type of insurance	Private	70 (67.3%)	54 (65.9%)	.876
	Other	34 (32.7%)	28 (34.1%)	
Organ site	Cervix/Vulva	26 (25.0%)	29 (35.4%)	.196
	Ovary	39 (37.5%)	31 (37.8%)	
	Uterus	39 (37.5%)	22 (26.8%)	
Stage at diagnosis	I	10 (9.6%)	7 (8.5%)	.068
	II	10 (9.6%)	13 (15.9%)	
	III	31 (29.8%)	35 (42.7%)	
	IV	53 (51.0%)	27 (32.9%)	
First ECOG score	0	36 (34.6%)	26 (31.7%)	.584
	1	22 (21.2%)	26 (31.7%)	
	2	3 (2.9%)	2 (2.4%)	
	3	1 (1.0%)	1 (1.2%)	
	Unknown	42 (40.4%)	27 (32.9%)	

ECOG: Eastern Cooperative Oncology Group.

Table 4. Clinical Factors Associated With Palliative Medicine Referral.

Variable		No PM referral (N = 104)	PM referral (N = 82)	P value
Analgesic use	Yes	77 (74.0%)	80 (97.6%)	<.001
	No	27 (26.0%)	2 (2.4%)	
Antiemetic use	Yes	71 (68.3%)	71 (86.6%)	.005
	No	33 (31.7%)	11 (13.4%)	
Agitation Rx use	Yes	33 (31.7%)	44 (53.7%)	.003
	No	71 (68.3%)	38 (46.3%)	
Appetite stimulant use	Yes	18 (17.3%)	35 (42.7%)	<.001
	No	86 (82.7%)	47 (57.3%)	
Bowel regimen use	Yes	48 (46.2%)	64 (78.0%)	<.001
	No	56 (53.8%)	18 (22.0%)	
Emergency department visits since diagnosis	0-5	97 (93%)	55 (67%)	<.001
	6+	7 (7%)	27 (33%)	
Patient expired	Yes	21 (20.2%)	47 (57.3%)	<.001
	No	83 (79.8%)	35 (42.7%)	
Chemo in last 30 days	Yes	4 (19%)	9 (19%)	1.00
	No	17 (81%)	38 (81%)	
Procedure in last 30 days	Yes	4 (19%)	7 (15%)	.727
	No	17 (81%)	40 (85%)	
Hospice referral	Yes	14 (13%)	53 (65%)	<.001
	No	90 (87%)	29 (35%)	

Table 5. Time From Palliative Medicine Referral to Patient Demise.

Time from Referral to Patient Demise	N (%)
<7 days	4 (8.5)
7 to 14 days	2 (4.3%)
15 to 30 days	9 (19.1%)
>30 days	32 (68.1%)

Differences in palliative medicine referral, resource utilization, and EOL interventions by race and language spoken are shown in [Tables 6](#) and [7](#). A higher proportion of Black patients were prescribed appetite stimulants compared to White patients (41% vs 24%, $P = .038$). Black patients also had a higher number of emergency department visits/hospitalization ($P = .035$). Chemotherapy in the last 30 days of life was higher among Black patients compared to White (38.8% vs 12%, $P = .019$). Language spoken was not a significant factor associated with medication use or interventions in the last 30 days of life.

On review of patients who were referred to palliative medicine but did not complete a consultation ([Supplementary Table](#)), organ site was noted to be the only significant variable, with patients who had ovarian cancer being less likely to complete a consultation compared to those with uterine, cervical, or vulvar malignancies. Given the small sample size of patients who didn't complete consultation despite a referral placed (15 subjects), no clear conclusions can be made regarding specific patient populations who might be more at risk for non-completion of palliative medicine consultation.

Discussion

In this investigation we demonstrated that there were no differences in palliative care referral by race, but that palliative care referral was associated with greater utilization of resources for symptom control. Variation in specific tools for alleviation of symptoms, such as appetite stimulants, and differences in futile measures near end of life did, however, vary by race. Our unique population, inclusive of more than 20% confirmed immigrants and >50% racial/ethnic minorities provides a unique lens to the needs of these women in the setting of advanced or recurrent cancer.

Studies evaluating end-of-life interventions among minority patients undergoing care for advanced or metastatic gynecologic malignancies are limited, given that data on racial disparities among these patients is inconsistently included. Barbera et al reported on health services received near end-of-life among 2,040 gynecologic cancer patients, but no racial or ethnic data were provided.¹⁵ A recent study by Islam et al published in 2021, in which patients with advanced gynecologic cancer were studied to evaluate racial or ethnic disparities in palliative medicine utilization, did include data about race/ethnicity. However, over 70% of the cohort was comprised of non-Hispanic White patients (73.5%) with approximately 17% of patients identified as non-Hispanic Black, or Hispanic.¹⁶ In contrast, our study cohort consisted of 49.5% non-Hispanic White, with non-Hispanic Black and Hispanic patients representing 24.7% and 22.6% respectively.

In our cohort, Black patients had a higher number of emergency department visits and/or hospitalizations compared to White patients (Hispanic and Non-Hispanic

Table 6. Sub-group analysis by patient race.

Variable		White	Black	P value
Analgesic use	Yes	120 (86%)	37 (80%)	.482
	No	20 (14%)	9 (20%)	
Antiemetic use	Yes	107 (76%)	35 (76%)	1.00
	No	33 (24%)	11 (24%)	
Agitation Medication use	Yes	77 (55%)	14 (30%)	.088
	No	63 (45%)	32 (70%)	
Appetite stimulant use	Yes	34 (24%)	19 (41%)	.038
	No	106 (76%)	27 (59%)	
Bowel regimen use	Yes	82 (59%)	30 (65%)	.489
	No	58 (41%)	16 (35%)	
Admission or emergency department visit since diagnosis	0-5	119 (85%)	33 (71%)	.035
	6+	21 (15%)	13 (28%)	
Chemo in last 30 days	Yes	6 (12%)	7 (38.8%)	.019
	No	44 (88%)	11 (61.1%)	
Surgery in last 30 days	Yes	7 (14%)	4 (8.7%)	.469
	No	43 (86%)	14 (30.4%)	
Hospice referral	Yes	45 (32.1%)	22 (47.8%)	.076
	No	95 (67.9%)	24 (52.5%)	
Hospice enrollment	Yes	43 (30.7%)	19 (41.3%)	.209
	No	97 (69.3%)	27 (58.7%)	

Table 7. Sub-group analysis by patient spoken language.

Variable		English	Non-English	P value
Analgesic use	Yes	110 (84.6%)	47 (83.9%)	1.00
	No	20 (15.4%)	9 (16.1%)	
Antiemetic use	Yes	100 (76.9%)	42 (75%)	.851
	No	30 (23.1%)	14 (25%)	
Agitation Medication use	Yes	58 (44.6%)	19 (33.9%)	.197
	No	72 (55.4%)	37 (66.1%)	
Appetite stimulant use	Yes	37 (28.5%)	16 (28.6%)	1.00
	No	93 (71.5%)	40 (71.4%)	
Bowel regimen use	Yes	76 (58.5%)	36 (64.3%)	.515
	No	54 (41.5%)	20 (35.7%)	
Admission or emergency department visit since diagnosis	0-5	105 (81%)	47 (84%)	.120
	5+	25 (19%)	9 (16%)	
Chemo in last 30 days	Yes	9 (18%)	4 (22%)	1.00
	No	41 (82%)	14 (78%)	
Surgery in last 30 days	Yes	7 (14%)	4 (22%)	.736
	No	43 (86%)	14 (78%)	
Hospice referral	Yes	50 (38.5%)	17 (30.4%)	.321
	No	80 (61.5%)	39 (69.6%)	
Hospice enrollment	Yes	45 (34.6%)	17 (30.4%)	.614
	No	85 (65.4%)	39 (69.6%)	

combined) during the study timeframe. Black patients were also noted to have a higher use of chemotherapy in the last 30 days of life compared to White patients (38.8% vs 11.7%). This is consistent with findings from Yang et al reporting a significantly higher percentage of aggressive end-of-life interventions in Non-Hispanic Black patients, including

higher ICU admission in the last 30 days of life as well as chemotherapy in the last 14 days of life.^{17,18} The increased use of emergency department visits or hospitalizations by Black patients has also been seen in other studies.^{19,20} Among patients with ovarian cancer, Taylor et al similarly found differences in end-of-life care among minority

patients, with Black patients being more likely to visit the emergency department within the last 30 days of life compared to White patients.²¹ The reason for this observation is not definitively known and is likely multifactorial, with complex social aspects such as cultural preferences, religious beliefs, overall trust in the medical profession, lack of advanced care planning, as well as patients' and caregivers' emergency care preferences.^{22,23}

Smith et al, using data from the Coping with Cancer study, demonstrated that Black and Hispanic patients were less likely to have an advanced care plan, and more likely to want life-prolonging care, even with only a few days left to live.²⁴ These patients were less likely to acknowledge their terminally ill status, citing religion as a very important factor. In a study by LoPresti et al, African American patients perceived a greater need for hospice, but more frequently had inadequate knowledge of hospice care.²² Additionally, there was less documentation of advanced care plans among Hispanics and African Americans, with some of the reasons provided being religious or cultural differences, caregiver respect for autonomy, access barriers, and acknowledgment of end-of-life care options. Mack et al noted that end-of-life discussions in white patients translated to less aggressive interventions, which was not the case in black or Hispanics.²⁵ In Black and Hispanic patients, end-of-life discussions resulted in more DNR orders being placed but didn't translate into less aggressive interventions during end-of-life care, raising question about the quality and impact of that counseling.^{22,24-27}

Use of appetite stimulants among Black patients was higher compared to that of White patients. Retrospective studies in patients with pancreatic cancer have shown that cachexia disproportionately affects Black patients more than White, with no well-established explanation.²⁸ In another publication by Lambda et al, the use of various types of medications for symptom control were lower among African Americans and Hispanics patients compared to White.²⁹ This study included both male and female patients as well as various cancer types such as lung, breast, esophageal, testicular, and ovarian, among many other, factors which can obscure the utilization pattern among gynecologic malignancies which could explain the different observed outcomes.

When assessing the timeliness of palliative medicine referral for patients with advanced or recurrent gynecologic malignancies, a single institution retrospective analysis by Nitecki et al showed that among patients with metastatic or advanced ovarian cancer, 38% of them were referred to palliative medicine within 30 days from death, and 17% within one week.³⁰ Nevadunsky et al evaluated 100 racially diverse patients who died from primary gynecologic malignancies at a single institution, with 49% being referred to palliative medicine and only 18% being referred more than 30 days prior to their death.³¹ In our cohort, 31% of patients were referred within 30 days of death, with 8.5% referred within the last week of life,

suggesting that our cohort may have been referred earlier in the disease course. Unlike the population studied by Nitecki et al which included 85% of White patients, our patient population is more racially diverse with Black and Hispanic patients comprising over 47% of the cohort, similar distribution to those patients evaluated and reported by Nevadunsky et al in their study.

The proportion of patients who had a referral to hospice, while not statistically significant, was higher among Black patients relative to White patients (47.8% vs 32.1%, $P = .076$). This finding is consistent with a retrospective, cross-sectional study by Johnson et al, which included 35% (644) of patients with neoplasm related admissions with over 50% of the population being African American or Hispanic didn't show any statistical association between inpatient Palliative Medicine consultation and discharge to hospice in regard to race or ethnicity.³² Similar to their reported findings, we identified a significant association between palliative medicine consultation and hospice referral ($<.001$), an expected finding given that over 50% of our cohort was referred to palliative medicine within the last 30 days of life, reflective of the advanced state of disease and clinical condition. Notably, the use of chemotherapy was higher in Black patients within the last 30 days of life, despite the relatively high proportion of referrals to hospice. While the reasons for this are likely multifactorial, it suggests that futile treatments may be more utilized in this population or that hospice referrals are later when death may be imminent.

Strengths and Limitations

Our study was limited by its retrospective nature, with the associated risk of information bias, especially because data abstraction was completed by review of an electronic medical record with multiple users. This was a particular limitation when attempting to identify reasons for patients not being seen by palliative medicine providers after a referral had been placed, which was the case among 15 patients within the study population. Additionally, it was done at a single institution, which may limit generalizability. Despite these limitations, however, we present data on a diverse group of gynecologic cancer patients with a sizable number of minorities included. During the study interval, the gynecologic oncology or palliative medicine faculty did not change, so there is no anticipated temporal bias which may distort referral patterns.

Conclusion

Despite similar trends in referral to palliative medicine across racial groups, the use of symptom-alleviating medications and utilization of aggressive interventions near the end-of-life significantly varies. Improve counseling practices regarding EOL care such as advanced care planning as well as qualitative research to better understand EOL perceptions and

values among Black and other minorities should be considered to improve clinical understanding of care preferences, and the numerous sociocultural influences which inform these preferences.

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Author Contributions

Angel Tabuyo-Martin: Conceptualization, Methodology, Formal Analysis, Investigation, Writing-Original Draft, Visualization, Project administration. Angelica Torres-Morales: Investigation, Conceptualization, Writing - Original Draft. Marie J. Pitteloud: Investigation, Conceptualization, Writing - Original Draft. Alisha Kshetry: Investigation. Carina Oltmann: Writing - Review & Editing. Joseph M. Pearson: Writing - Review & Editing. Mariana Khawand: Writing - Review & Editing. Sophia HL George: Writing - Review & Editing. Matthew P. Schlumbrecht: Conceptualization, Methodology, Writing - Review & Editing, Supervision, Project administration. Julia C. Sanchez: Conceptualization, Methodology, Writing - Review & Editing, Supervision, Project administration.

Declaration of Conflicting Interests

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Ethical Approval

This study was approved by the University of Miami Institutional Review Board (IRB Protocol #20200275).

Informed Consent

Informed consent for patient information to be published in this article was not obtained because approval was received for both waiver of consent and full waiver of authorization based on the study design.

Statement of Human and Animal Rights

All procedures in this study were conducted in accordance with the University of Miami Institutional Review Board (IRB Protocol #20200275).

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Supplemental Material

Supplemental material for this article is available online.

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