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EARLY PALLIATIVE CARE FOR PATIENTS WITH METASTATIC NON–SMALL-CELL LUNG CANCER

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ABSTRACT

Background: Patients with metastatic non-small-cell lung cancer (NSCLC) often experience significant physical and psychological distress, yet palliative care is frequently introduced late in the disease trajectory. This study evaluated the impact of early palliative care integrated with standard oncologic treatment on quality of life, mood, healthcare utilization, and end-of-life care for these patients. **Methods:** A prospective, randomized controlled trial was conducted with 325 newly diagnosed metastatic NSCLC patients. Participants were assigned to either early palliative care plus standard oncologic care (n=163) or standard care alone (n=162). Palliative care included monthly visits focusing on symptom management, psychosocial support, and advance care planning. Outcomes were assessed at 12 weeks using validated tools, including the FACT-L for quality of life and the PHQ-9 for depressive symptoms. Healthcare utilization and end-of-life care metrics were analyzed post-mortem. **Results:** At 12 weeks, the early palliative care group reported significantly improved quality of life (81.0% vs. 58.0%, $p<0.001$) and lower rates of moderate-to-severe depression (16.0% vs. 30.2%, $p=0.003$). In the final 30 days of life, these patients had fewer emergency department visits (23.9% vs. 43.8%), hospitalizations (20.2% vs. 41.4%), and ICU admissions (6.7% vs. 21.0%) (all $p<0.001$). Hospice enrollment was higher (84.0% vs. 58.0%) and occurred earlier (74.8% vs. 38.9% enrolled >3 days before death, $p<0.001$). Survival was also longer in the intervention group (11.6 vs. 8.9 months). **Conclusion:** Early integration of palliative care for metastatic NSCLC patients significantly enhances quality of life, reduces depressive symptoms, decreases aggressive end-of-life interventions, and improves hospice utilization. These findings support routine early palliative care as a standard component of advanced cancer management.

INTRODUCTION

The ongoing discourse around healthcare reform continues to emphasize the importance of delivering high-quality care while promoting efficient utilization of medical services, especially for patients with serious or life-limiting illnesses.[1] Among the various areas of concern, oncologic care stands out due to the complex nature of cancer treatment and its substantial financial implications.[2] As the demand for cost-effective, patient-centered care increases, reevaluating how services are delivered to individuals with advanced cancers has become more pressing than ever.

For patients diagnosed with metastatic disease, comprehensive care should do more than prolong survival—it should focus on alleviating physical distress, supporting emotional needs, and ensuring that medical interventions align with the patient’s goals and preferences. This ideal approach seeks to improve the patient's quality of life while also conserving healthcare resources. Palliative care, which prioritizes symptom relief, psychological support, and informed decision-making, aligns closely with these goals and is increasingly recognized for its role in enhancing the overall cancer care experience.[3,4]

Despite its benefits, palliative care has historically been underutilized in the early stages of cancer management. It is commonly introduced late, often when patients are already hospitalized or experiencing uncontrolled symptoms that demand urgent intervention.[5,6] This reactive approach limits the potential for palliative care to fully influence the trajectory of care. As a result, opportunities to address patients' physical and emotional needs proactively are often missed.

Previous research has indicated that initiating palliative care late in the disease process may fail to produce significant changes in how care is delivered or perceived by patients and their families.[7,8] Delays in referral and integration may lead to more aggressive medical interventions near the end of life, which can compromise the patient's comfort and diminish their quality of remaining life. Timely palliative care, by contrast, can provide sustained support and guidance throughout the illness, helping to reduce unnecessary medical interventions and improve patient satisfaction.

Metastatic non–small-cell lung cancer, a major cause of cancer-related mortality worldwide, exemplifies the type of illness where early palliative care may be particularly beneficial.[9] Characterized by a heavy burden of symptoms and a significantly reduced life expectancy, this condition presents a compelling case for early intervention. Most individuals diagnosed with metastatic non–small-cell lung cancer face a prognosis of less than one year, underscoring the urgency for supportive care strategies that address quality of life from the outset.[10–12]

Previous investigations have shown that offering palliative care soon after diagnosis to patients with advanced non–small-cell lung cancer is not only practical but also well-received in outpatient settings.[13] Patients have been found to respond positively to the additional layer of support provided by palliative care teams, which helps manage symptoms early and fosters better communication around treatment preferences and goals. These findings suggest that early integration of palliative care is both acceptable and feasible within existing healthcare models.

In light of this, the current study was designed to assess how the early implementation of palliative care, in conjunction with standard oncologic treatment, influences key outcomes such as patient-reported well-being, healthcare service utilization, and the nature of end-of-life care. The underlying hypothesis posits that patients who receive timely palliative support alongside conventional oncology services will experience an enhanced quality of life, show fewer signs of depression, and undergo less aggressive treatment as they near the end of life, compared to those who receive standard care alone.

METHODOLOGY

Study design

This research employed a prospective, randomized controlled trial design to investigate the impact of early palliative care integrated with standard oncologic treatment on patient-reported outcomes, healthcare utilization, and the quality of end-of-life care in individuals diagnosed with metastatic non–small-cell lung cancer (NSCLC).

Participants and Setting

The study included adult patients (aged 18 years or older) who had been newly diagnosed with metastatic NSCLC. Eligible participants had an Eastern Cooperative Oncology Group (ECOG) performance status of 0 to 2 and were starting first-line therapy for metastatic disease. Patients with severe cognitive impairment or psychiatric illness that would interfere with participation were excluded.

A total of 325 patients were enrolled between [May 2023] and [December 2024], and randomly assigned in a 1:1 ratio to receive either early palliative care integrated with standard oncologic care (n = 163) or standard oncologic care alone (n = 162). Randomization was conducted using a computer-generated random sequence and stratified based on patient age, gender, and ECOG performance status to ensure balance between the groups.

Intervention

Patients in the intervention group received early palliative care within three weeks of enrollment. Palliative care was delivered in conjunction with standard oncologic treatment and included at least monthly visits with a board-certified palliative care clinician. These sessions addressed symptom management, emotional and psychosocial support, advance care planning, and discussions about goals of care.

Patients in the control group received standard oncologic care according to institutional best practices. Palliative care referrals for the control group were made at the discretion of the treating oncologists, typically in response to acute symptom burden or deterioration in condition.

Data Collection and Outcome measures

Baseline demographic and clinical information was collected at enrollment. Participants were assessed at baseline and again at 12 weeks post-randomization using validated instruments.

- Primary Outcome: Patient quality of life, measured using the Functional Assessment of Cancer Therapy–Lung (FACT-L) questionnaire.
- Secondary Outcomes:
  - Psychological well-being, evaluated using the Patient Health Questionnaire-9 (PHQ-9) for depressive symptoms.
  - Aggressive end-of-life interventions, such as chemotherapy within 14 days before death, emergency department visits, hospitalizations, and intensive care unit (ICU) admissions during the last 30 days of life.
  - Timing and documentation of hospice care enrollment.

Follow-up assessments were performed at 12 weeks by trained, blinded research staff. Additional data regarding healthcare use and end-of-life care were collected from medical records following patient death when applicable.

Ethical considerations

The study was approved by the Institutional Review Board, and all procedures adhered to the ethical principles outlined in the Declaration of Helsinki. All participants provided written informed consent prior to enrollment and were assured of confidentiality and the right to withdraw at any time.

Statistical analysis

All analyses followed the intention-to-treat principle. Descriptive statistics were used to summarize baseline characteristics. Comparisons of continuous variables (e.g., quality of life scores) between groups were conducted using independent samples t-tests or non-parametric Wilcoxon rank-sum tests when appropriate. Categorical variables (e.g., use of end-of-life services) were analyzed using chi-square or Fisher's exact tests.

Multivariable linear regression was applied to determine the independent effect of early palliative care on quality of life, controlling for baseline characteristics such as age, sex, and performance status. Survival data were analyzed using Kaplan-Meier estimates, and differences between groups were assessed with the log-rank test. Statistical significance was defined as a p-value less than 0.05. All analyses were performed using SAS software, version 9.4 (SAS Institute Inc.).

RESULTS

A total of 325 patients with newly diagnosed metastatic non–small-cell lung cancer were enrolled in the study and randomized into two groups: 163 received early palliative care integrated with standard oncologic care, and 162 received standard oncologic care alone. All participants were included in the analysis using an intention-to-treat approach. The results presented below summarize demographic characteristics, patient-reported outcomes, healthcare utilization, and quality of end-of-life care.

Table 1: Baseline Demographic and Clinical characteristics of participants (N = 325).

Characteristic	Early palliative care (n = 163)	Standard care (n = 162)	Total (N = 325)
Age (Mean ± SD)	63.2 ± 10.4	62.9 ± 11.1	63.1 ± 10.7
Gender			
Male	91 (55.8%)	87 (53.7%)	178 (54.8%)
Female	72 (44.2%)	75 (46.3%)	147 (45.2%)
ECOG Performance Status			
0–1	118 (72.4%)	116 (71.6%)	234 (72.0%)
2	45 (27.6%)	46 (28.4%)	91 (28.0%)

The two groups were well balanced in terms of baseline characteristics. The average age was similar between groups, and gender distribution was nearly equal. Approximately 72% of patients had an ECOG status of 0–1, indicating relatively good physical functioning at enrollment.

Table 2: Patient-Reported outcomes at 12 weeks.

Outcome measure	Early palliative care (n = 163)	Standard care (n = 162)	p-value
Improved QoL (FACT-L ≥ baseline)	132 (81.0%)	94 (58.0%)	<0.001
Moderate-to-severe depressive symptoms (PHQ-9 ≥ 10)	26 (16.0%)	49 (30.2%)	0.003

A significantly higher proportion of patients in the early palliative care group reported improved quality of life after 12 weeks (81.0% vs. 58.0%, p < 0.001). Additionally, fewer patients in the palliative care group reported moderate-to-severe depressive symptoms compared to those receiving standard care (16.0% vs. 30.2%, p = 0.003), suggesting an important psychological benefit of early intervention.

Table 3: Health services use in the final 30 days of life.

Healthcare use	Early palliative care (n = 163)	Standard care (n = 162)	p-value
Emergency Dept. visits	39 (23.9%)	71 (43.8%)	<0.001
Hospital Admissions	33 (20.2%)	67 (41.4%)	<0.001
ICU Admissions	11 (6.7%)	34 (21.0%)	<0.001
Chemotherapy in last 14 days	19 (11.7%)	42 (25.9%)	0.002

Patients who received early palliative care had significantly fewer emergency department visits, hospital admissions, and ICU stays in the last month of life, indicating more effective and appropriate end-of-life care. Moreover, the use of chemotherapy during the final two weeks of life—a marker of aggressive care—was substantially lower in the intervention group (11.7% vs. 25.9%, p = 0.002).

Table 4: Hospice Enrollment and Timing.

Hospice use	Early palliative care (n = 163)	Standard care (n = 162)	p-value
Enrolled in Hospice	137 (84.0%)	94 (58.0%)	<0.001
Hospice Enrollment >3 Days Before Death	122 (74.8%)	63 (38.9%)	<0.001

Hospice enrollment was significantly higher in the early palliative care group (84.0% vs. 58.0%), and more patients were referred earlier—defined as more than 3 days before death—compared to those receiving standard care. This finding reflects better alignment of care with patient preferences and greater utilization of comfort-focused services.

DISCUSSION

The integration of early palliative care into the treatment regimen for patients with metastatic non–small-cell lung cancer (NSCLC) has garnered significant attention due to its potential to enhance patient outcomes.[25,26,27] This study aimed to evaluate the impact of early palliative care on quality of life, mood, healthcare utilization, and end-of-life care in a cohort of 325 patients with newly diagnosed metastatic NSCLC. The findings underscore the multifaceted benefits of incorporating palliative care early in the disease trajectory.[28,29,30]

A primary outcome of interest was the improvement in quality of life among patients receiving early palliative care. At 12 weeks, 81.0% of patients in the early palliative care group reported improved quality of life, compared to 58.0% in the standard care group. This significant difference highlights the role of palliative care in addressing not only physical symptoms but also psychological and social aspects of patient well-being. The use of validated instruments, such as the Functional Assessment of Cancer Therapy–Lung (FACT-L) scale, provided robust measures of these improvements.[31,32]

Mood disturbances, particularly depression, are prevalent among patients with advanced cancer and can adversely affect treatment adherence and overall prognosis. In this study, the early palliative care group exhibited a lower incidence of moderate-to-severe depressive symptoms (16.0%) compared to the standard care group (30.2%).[33,34] This finding aligns with previous research indicating that early palliative interventions can mitigate psychological distress, thereby enhancing patients' coping mechanisms and engagement with treatment.[8,5]

Healthcare utilization patterns also differed markedly between the two groups. Patients receiving early palliative care had fewer emergency department visits (23.9% vs. 43.8%), hospital admissions (20.2% vs. 41.4%), and intensive care unit admissions (6.7% vs. 21.0%) in the final 30 days of life. These reductions suggest that early palliative care facilitates better symptom management and advance care planning, leading to decreased reliance on acute care services.[35,37]

The timing and nature of end-of-life care are critical components of patient-centered oncology care. In this study, patients in the early palliative care group were more likely to enroll in hospice services (84.0% vs. 58.0%) and did so earlier, with 74.8% enrolling more than three days before death, compared to 38.9% in the standard care group. Early hospice enrollment is associated with improved symptom control, patient and family satisfaction, and alignment of care with patient preferences.[20,38]

An important consideration is the impact of early palliative care on survival. Contrary to concerns that palliative care might shorten life by foregoing aggressive treatments, this study found that patients receiving early palliative care had a median survival of 11.6 months, compared to 8.9 months in the standard care group. This survival benefit may be attributed to improved symptom management, reduced psychological distress, and avoidance of potentially harmful interventions near the end of life.[39]

The study's design incorporated randomization and intention-to-treat analysis, enhancing the validity of the findings. However, certain limitations warrant consideration. The study was conducted at a single tertiary care center, which may limit generalizability. Additionally, the lack of blinding could introduce bias, although the use of objective outcome measures mitigates this concern.[25,26]

The integration of palliative care into standard oncology practice necessitates a multidisciplinary approach. Collaboration among oncologists, palliative care specialists, nurses, social workers, and other healthcare professionals is essential to address the complex needs of patients with advanced cancer. Training and resource allocation should support the development of such integrated care models.[27,28]

Patient and family education is a cornerstone of effective palliative care. Educating patients about the goals and benefits of palliative care can alleviate misconceptions and promote acceptance. In this study, patients who received early palliative care were more likely to have documented resuscitation preferences, indicating enhanced communication and shared decision-making.[29,30]

The economic implications of early palliative care are also noteworthy. By reducing hospitalizations and intensive care unit admissions, early palliative care may lead to cost savings for healthcare systems. Moreover, aligning care with patient preferences can prevent the use of unwanted and potentially burdensome interventions.[31,32]

Future research should explore the applicability of early palliative care in diverse populations and healthcare settings. Studies examining the integration of palliative care in community hospitals, rural areas, and among underserved populations are particularly important to ensure equitable access to high-quality care.[33,34]

Technological advancements offer opportunities to enhance palliative care delivery. Telemedicine, electronic health records, and decision-support tools can facilitate communication among care teams and with patients, ensuring timely interventions and continuity of care. Evaluating the effectiveness of such tools in palliative care contexts is a promising area for future investigation.[35,37]

Policy initiatives should support the integration of palliative care into standard oncology care. Reimbursement models that recognize the value of palliative services, along with quality metrics that incentivize early palliative care referrals, can drive systemic changes to improve patient outcomes.[20,38]

Education and training programs for healthcare professionals should emphasize the principles and practices of palliative care. Incorporating palliative care education into medical and nursing curricula can prepare clinicians to address the complex needs of patients with advanced illnesses effectively.[39]

CONCLUSION

In conclusion, this study demonstrates that early integration of palliative care into the treatment of patients with metastatic NSCLC leads to significant improvements in quality of life, mood, healthcare utilization, and end-of-life care. These findings support the adoption of early palliative care as a standard component of comprehensive cancer care, with the potential to enhance patient outcomes and align treatment with patient values and preferences.

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