Cerrahpaşa Med J 2025; 49: 1-7 ORIGINAL ARTICLE

The Impact of G-8 Frailty Scores on Oncological Outcomes in Elderly Lung Cancer Patients

Ecem Demir[1], Halil Cumhur Yıldırım[2], İsmail Fatih Demirel[2], Derya Bölükbaş[2], Fazilet Öner Dinçbaş[2]

[1]Department of Radiation Oncology, Başakşehir Çam and Sakura City Hospital, İstanbul, Türkiye
[2]Department of Radiation Oncology, İstanbul University-Cerrahpaşa, Faculty of Medicine, İstanbul, Türkiye

Cite this article as: Demir E, Yıldırım HC, Demirel İF, Bölükbaş D, Öner Dinçbaş F. The impact of G-8 frailty scores on oncological outcomes in elderly lung cancer patients. *Cerrahpaşa Med J.* 2025, 49, 0071, doi:10.5152/cjm.2025.25071.

What is already known on this topic?

- *Elderly lung cancer patients often have increased frailty and comorbidities, which complicate tolerance to standard radiotherapy and chemoradiotherapy.*
- *The G-8 geriatric screening tool is widely used to identify frail older cancer patients, but its prognostic value for survival and toxicity in lung cancer remains inconsistent.*

What this study adds on this topic?

- *This study shows that the conventional G-8 cutoff of 14 does not predict survival or toxicity outcomes in elderly lung cancer patients treated with RT ± CT.*
- *A lower G-8 cutoff value of 10 was identified as prognostic for progression-free survival in this population.*
- *The findings highlight the need for refined or alternative geriatric assessment tools to better stratify risk and guide treatment decisions in geriatric lung cancer patients.*

Abstract

Objective: The aim was to evaluate the relationship between the G-8 geriatric screening score and clinical outcomes in elderly lung cancer patients treated with radiotherapy (RT) ± chemotherapy (CT).

Methods: This retrospective study analyzed data from 80 lung cancer patients aged ≥65 years who underwent RT ± CT between 2010 and 2020. All patients were assessed using the G-8 screening tool. Survival analyses were performed using the Kaplan–Meier method, and toxicities were graded according to the Common Terminology Criteria for Adverse Events version 4. Prognostic factors for survival were evaluated using the log-rank test and Cox regression analysis.

Results: The median age was 69 years, and 72.5% of patients had non–small cell lung cancer (NSCLC). The median progression-free survival (PFS) and overall survival (OS) were 11.5 and 17.5 months, respectively. Grade ≥3 toxicity occurred in 12.5% of patients, with higher rates among those with NSCLC and those receiving concurrent CT. Frail patients (92%, G-8 ≤14) showed no significant differences in survival or toxicity compared with non-frail patients (P = .652). While the conventional cutoff of 14 was not an independent prognostic factor for PFS or OS, a cutoff value of 10 was prognostic for PFS (P = .037) in the patient population.

Conclusion: Most of the lung cancer patients aged ≥65 years were frail according to the G-8 score. The conventional cutoff of 14 did not correlate with treatment outcomes or toxicity; however, a cutoff value of 10 was prognostic for PFS. These findings highlight the need for improved assessment tools to better predict treatment-related toxicity and mortality in geriatric lung cancer patients.

Keywords: G-8 test, geriatric evaluation, geriatric oncology, lung cancer, survival

Introduction

Lung cancer is one of the most common malignancies worldwide and is associated with substantial mortality and morbidity. According to Global Cancer Observatory (GLOBOCAN) 2022 data, Türkiye reports an incidence of 54.3 per 100 000, accounting for 17.1% of all cancer cases.[1] The curative treatment of unresectable stage III non–small cell lung cancer (NSCLC) is chemoradiotherapy followed by durvalumab, as established by the PACIFIC trial.[2] For limited stage small cell lung cancer (SCLC), the standard treatment is also chemoradiotherapy followed by durvalumab, as established in the ADRIATIC trial.[3] Combined chemotherapy-radiotherapy and maintenance immunotherapy may cause significant morbidity and mortality, even in patients with good performance status.[4] The aging of the population has led to an increase in lung cancer diagnoses among elderly adults, with approximately 60% of new cancer cases and 70% of cancer-related deaths occurring in individuals aged 65 years and older.[5] Despite the demographic shift, there remains a lack of high-level evidence to guide management in this age group. Elderly patients often have multiple comorbidities, rendering them frail and frequently ineligible for clinical trials involving younger populations.[6]

In geriatric patients, identifying who can tolerate standard oncological treatment is crucial. Comprehensive geriatric assessment (CGA) is recommended to evaluate the overall health status of

Received: September 23, 2025 **Revision Requested:** October 6, 2025 **Last Revision Received:** October 14, 2025
Accepted: October 19, 2025 **Publication Date:** December 30, 2025
Corresponding author: Ecem Demir, Department of Radiation Oncology, Başakşehir Çam and Sakura City Hospital, İstanbul, Türkiye E-mail: drecemkeles@gmail.com
DOI: 10.5152/cjm.2025.25071

elderly patients, including comorbidities, cognitive function, and nutritional status.[7] The G-8 screening tool has emerged as a practical method for identifying elderly who might benefit from more CGA, but the applicability of these tools in clinical practice remains limited.[8] This study aims to analyze the relationship between the G-8 score, clinical outcomes, and treatment-related toxicity in lung cancer patients aged ≥65 years who received radiotherapy (RT) ± chemotherapy (CT). The aim was to improve understanding of how geriatric assessment can help tailor treatment strategies and improve clinical outcomes in this fragile patient population.

Methods

Clinical data of 80 lung cancer patients aged ≥65 years who received RT ± CT in the clinic between 2014 and 2020 were retrospectively analyzed. Clinical staging was based on the 8th edition of the American Joint Committee on Cancer TNM classification which is an internationally standardized system for staging cancer based on primary tumor extent, regional lymph node involvement, and distant metastasis. The decision for curative chemoradiotherapy was made in a multidisciplinary tumor board. Each patient was evaluated in terms of stage, performance status, and comorbidities. Patients with stage III disease, good general condition (Karnofsky Performance Status [KPS] ≥70), and no serious comorbidities were considered eligible for curative treatment.

Performance status was assessed using the KPS scale. Treatment toxicity was evaluated according to the Common Terminology Criteria for Adverse Events version 4. All patients aged >65 years, classified as "elderly" by the World Health Organization were routinely assessed with the G-8 screening tool.[9] Patients younger than 65 years, those diagnosed with metastatic disease, and those treated with stereotactic body radiotherapy were excluded.

The evaluated variables included age, sex, disease stage, KPS, smoking, alcohol use, histological subtype (SCLC vs. NSCLC), CT modality (sequential, concurrent, or none), toxicity events (pneumonia, esophagitis, neutropenia), presence of a secondary primary tumor, cause and date of death, and presence/date of progression or metastasis. The G-8 screening assessment was performed at the time of diagnosis, prior to RT. All patients provided informed consent to the G-8 test. Associations between G-8 scores and overall/progression-free survival (PFS) were also examined. Ethical committee approval was received from the IUC-Cerrahpasa Faculty of Medicine Clinical Research Ethics Committee (Approval No.number: E-83045809-804.01-691244, 18.05.2023).

G-8 Geriatric Screening Tool

Comprehensive geriatric assessment is considered the most effective method for evaluating age-related challenges among older adults.[8] However, its use in outpatient oncology settings is often limited by the time-consuming nature of the assessment. Therefore, a need arose for less time-consuming screening tools capable of identifying patients who might benefit from a full CGA.[6] For this purpose, the G-8 screening tool has been developed for elderly cancer patients. With a sensitivity of 85% and a specificity of 64%, it is a reliable instrument for identifying frail patients.[7,10]

The G-8 tool assesses 8 items, including food intake, weight loss, mobility, neuropsychological condition, body mass index, medication use, and self-perceived health status. The total score ranges from 0 to 17, with a cutoff value of 14 indicating frailty.

Statistical Analysis

Overall survival (OS) was calculated from the completion of RT to the date of last follow-up or death. Progression-free survival was measured from the end of RT to the detection of new local recurrence or metastasis on computed tomography/Positron Emission Tomography(PET) imaging. The relationship between the G-8 scores and histology, age, gender, stage, CT status, and toxicity was analyzed. Potential factors influencing OS or PFS were assessed using the log-rank test. A Cox proportional hazards model was used to identify independent predictors of PFS and their associations with survival. Results were reported as hazard ratios (HRs) with 95% CIs. Correlations between individual G-8 parameters and PFS were assessed using Cox regression analysis. Potential prognostic cutoff values for total G-8 scores in relation to PFS were determined for the study cohort. Two cutoff values, 7 and 14, were determined, and subgroup analyses were conducted. All statistical analyses were performed using SPSS version 29 (IBM Corp., Armonk, NY, USA), and statistical significance was defined as $P < .05$.

Results

The median follow-up was 18 (1-135) months. The rate of patients using 3 or more drugs was 48.8% (n = 39, P = .006). Among the patients, 18.8% (n = 15) were treated at stage II, 73.8% (n = 59) at stage III, and 7.5% (n = 6) following recurrence. A total of 92% (n = 74) of patients had a G-8 score ≤14, while 8% (n = 6) scored >14. Thirty percent (n = 24) received concurrent CT, 52% (n = 41) sequential CT, and 18% (n = 15) did not receive CT. The acute grade 3-4 toxicity rate was 12.5% (n = 10). Patient demographics and clinical characteristics are summarized in Table 1. Radiotherapy was completed by 97.5% (n = 78) of the patients. The median PFS was 11.5 months (range: 2-138), and the median OS was 17.5 months (range: 2-138). The 2-year PFS and OS rates were 47.5% and 43%, respectively.

In this study, the median G-8 score at diagnosis was 10 (range: 4-16), with 92% (n = 74) of patients classified as frail using the ≤14 cutoff. However, no significant difference in survival was found between frail and non-frail patients using this threshold ($P = .652$). To refine prognostic stratification in this cohort, the data was reanalyzed using potentially more predictive cutoff. Receiver operating characteristic (ROC) curve analysis indicated that a G-8 score <10

Table 1. Patient Demographics and Clinical Properties

Clinical Properties		n	%
Age (years)	Median (min-max)	69 (65-83)	
Gender	Female	6	7.5
	Male	74	92.5
Histology	SCLC	22	27.5
	NSCLC	58	72.5
KPS	<70	13	16.3
	>70	67	83.8
Stage	2	15	18.8
	3	59	73.8
	Recurrence	6	7.5
Treatment modality	Concurrent CRT	24	30
	Sequential CT + RT	41	52
	RT	15	18
G-8 Score	≤14	74	92
	>14	6	8

CRT, curative chemoradiotherapy; CT, chemotherapy; KPS, Karnofsky performance score; NSCLC, non–small cell lung cancer; RT, radiotherapy; SCLC, small cell lung cancer.

was a more prognostic cutoff. Log-rank comparisons for PFS and OS based on G-8 scores <10 vs. >10 yielded *P*-values of .041 and .69, respectively. The corresponding PFS curve is presented in Figure 1.

The most frequently observed acute toxicities were dysphagia (5%), radiation pneumonitis or pneumonia (3.8%), and dyspnea (3.8%), followed by isolated cases of neutropenia (1.3%). No cardiac or severe gastrointestinal toxicities were reported. Overall, Grade ≥2 toxicity occurred in approximately 14% of patients. Grade ≥3 toxicity was observed in 10% (n = 8) of patients with a G-8 score below 14 and in 33% (n = 2) of those with a G-8 score above 14 (*P* = .16). Grade ≥3 toxicity developed in 7.3% (n = 3) of patients receiving sequential CT and in 20.8% (n = 5) of those receiving concurrent CT. The timing of chemotherapy had no statistically significant impact on the incidence of grade ≥3 toxicity (*P* = .91 and *P* = .11, respectively). However, these findings should be interpreted cautiously due to the low overall incidence of toxicity.

Analysis of individual G-8 test parameters in relation to PFS revealed that patients taking fewer than 3 medications daily and those who rated their health as comparable to peers demonstrated significantly better prognoses (univariate HR = 0.41, P = 0.006; and HR = 0.36, P = 0.02; multivariate HR = 0.47, P = 0.02; and HR = 0.41, P = 0.009 respectively).These factors remained statistically significant in the multivariate analysis (Table 2).

Discussion

In geriatric oncology, the primary goal of geriatric evaluation is to tailor treatment to each patient's physiological status, thereby avoiding both overtreatment and undertreatment.[11] Since the 2005 guidelines from the International Society of Geriatric Oncology, various screening tools have been developed with the G-8 test recognized as one of the most sensitive scales for identifying elderly patients who may benefit from a CGA.[12] However, subsequent expert consensus from the European Organisation for Research and Treatment of Cancer(EORTC) Elderly Task Force, Lung Cancer Group, and the International Society for Geriatric Oncology emphasized that while abbreviated instruments such as the G-8 may serve as practical screening tools, they possess limited sensitivity and specificity and therefore cannot replace a full CGA, which remains the gold standard for evaluating multidimensional frailty domains including comorbidity, nutrition, cognition, and functional reserve.[13] Previous studies have shown that geriatric assessments can substantially influence oncological treatment plans by facilitating the initiation of supportive care interventions. These evaluations are essential for reducing treatment-related toxicity, increasing treatment completion rates, and ultimately improving quality of life among elderly patients.[14] In this study, 92% of patients had a G-8 score <14, indicating a high prevalence of frailty among those with locally advanced lung cancer, consistent with findings from previous geriatric oncology research. For example, a study involving 364 cancer patients over the age of 70 years reported that 60%-94% had a G-8 score <14.[10] Similarly, a Dutch study found that 76% of lung cancer patients aged >70 years were classified as frail based on G-8 scores.[15]

Rationale and Validation of Alternative G-8 Cutoff Values

For geriatric evaluation, the G-8 screening test was utilized, which demonstrates high sensitivity for frailty (87%) but limited specificity (61%).[16] The optimal cutoff for frailty remains ambiguous and varies by context. The conventional G-8 threshold of 14

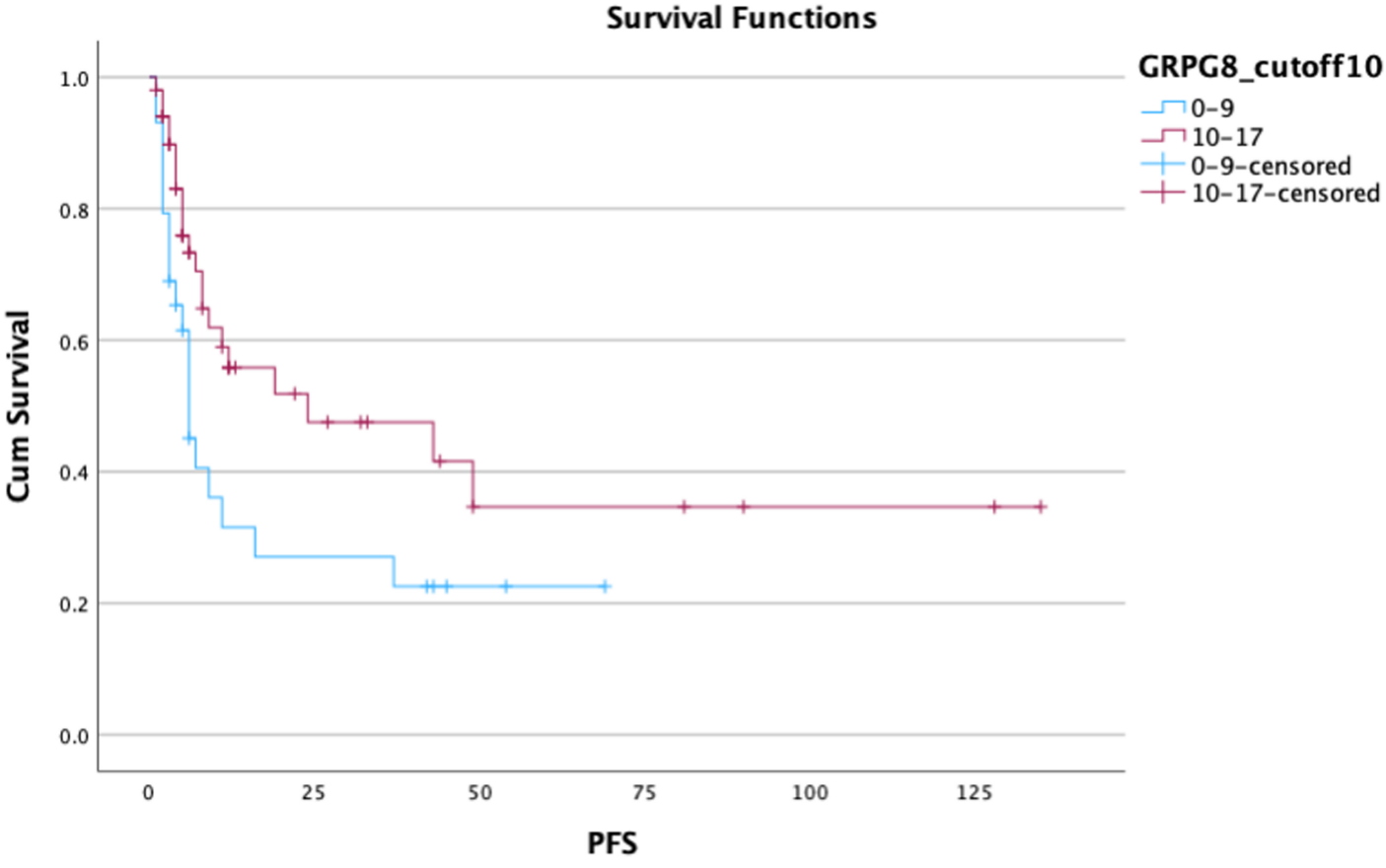

Figure 1. Progression-free survival curves among G-8 test score groups of <10 and >10.

Table 2. Progression-Free Survival Univariate and Multivariate Cox Regression Analysis

		Univariate Analysis			Multivariate Analysis		
Characteristic	**N (%)**	**HR**	**95% CI**	***P***	**HR**	**95% CI**	***P***
In comparison with other people of the same age, how does the patient consider their health status?							
Not as good	37 (46.3)	Ref.			Ref.		
As good	41 (51.2)	0.36	0.19-0.69	**.02**	0.41	0.21-0.80	**.009**
Better	2 (2.5)	0.50	0.06-3.72	.50	0.68	0.09-5.18	.71
Takes more than 3 prescription drugs per day							
Yes	39 (48.8)	Ref.					
No	41 (51.2)	0.41	0.21-0.77	**.006**	0.47	0.24-0.91	**.02**
Food Intake							
Severe decrease	20 (25.0)	Ref.					
Moderate decrease	40 (50.0)	0.63	0.31-1.37	.19			
No decrease	20 (25.0)	0.59	0.25-1.39	.22			
Weight Loss							
>3 kg	35 (43.8)	Ref.					
Not known	4 (5.0)	1.90	0.55-6.48	.30			
1-3 kg	29 (36.3)	0.84	0.43-1.67	.63			
No loss	12 (15.0)	0.74	0.27-1.99	.55			
Mobility							
Bedridden	2 (2.5)	Ref.					
Able to get out of bed	10 (12.5)	0.47	0.09-2.41	.37			
Goes out	68 (85.0)	0.38	0.09-1.59	.18			
Neuropsychological conditions							
Severe dementia	1 (1.3)	Ref.					
Mild dementia	9 (11.3)	0.56	0.06-4.75	.59			
No condition	70 (87.5)	0.48	0.06-3.59	.48			
Body mass index, kg/m^2							
<19	14 (17.5)	Ref.					
19-21	36 (45.0)	0.80	0.37-1.71	.56			
21-23	18 (22.5)	0.71	0.29-1.77	.47			
>23	2 (15.0)	0.33	0.09-1.23	.10			
Age (years)							
80-85	6 (7.5)	Ref.					
<80	74 (92.5)	1.11	0.34-3.63	.85			

HR, hazards ratio.

has been widely used to identify frailty in heterogeneous cancer populations; however, in the cohort, this cutoff classified more than 90% of patients as frail, and no significant difference in survival was observed between frail and non-frail patients (P = .652) at this threshold. To better stratify this predominantly frail lung cancer population, exploratory ROC analysis was performed to determine the cutoff value that best predicted progression-free survival. The analysis yielded a value of 10 with acceptable

sensitivity and specificity (Area Under Curve (AUC) = 0.67, 95% CI 0.52-0.81), suggesting that a lower threshold might better reflect clinically meaningful frailty in patients with locally advanced disease.

A secondary exploratory analysis identified 7 as an even stricter boundary associated with the poorest outcomes. Lower G-8 scores (<10 or <7) may better capture clinically meaningful frailty in elderly patients with advanced malignancies. Biologically, these lower thresholds likely reflect cumulative physiological decline due to factors such as sarcopenia, chronic inflammation, malnutrition, and multimorbidity—all of which contribute to reduced functional reserve and impaired treatment tolerance. Functionally, patients with such scores are more vulnerable to treatment-related toxicity, have diminished capacity for recovery, and often experience accelerated disease progression. Therefore, a stricter G-8 cutoff may provide a more accurate representation of biologically relevant frailty and help identify patients at greatest risk for poor oncological outcomes. As this was an exploratory retrospective analysis, no internal validation procedures such as bootstrap resampling or cross-validation were performed; therefore, the proposed G-8 cutoff value of ≤10 should be interpreted as hypothesis generating. Similar to this study, prior studies have shown that a G-8 score <12 predicts poor prognosis in metastatic castration-sensitive prostate cancer, while a score <13 is associated with worse outcomes in castration-resistant disease.[17] These findings support re-evaluation of the traditional G-8 ≤ 14 criterion and highlight the need for tumor- and treatment-specific frailty thresholds in geriatric oncology.

Association Between Frailty and Treatment-Related Toxicity

The data suggest that toxicity profiles were comparable between frail and non-frail groups as defined by the G-8 screening tool. These observations are supported by the findings of Ruiz et al,[18] who reported that frailty evaluation predicts toxicity during chemotherapy. They found that the toxicity rates did not differ based on frailty. These results suggest that although frailty is an important factor in treatment planning, it may not directly translate into higher toxicity rates. The study by Banna et al[19] supports that frailty assessments are valuable in guiding RT ± CT decisions; the actual differences in toxicity profiles may not be as pronounced as expected. Furthermore, recent advancements in radiotherapy techniques have contributed to a decline in RT-related toxicities.

To further assess the effect of treatment modality on toxicity, toxicity rates were comapred between patients receiving concurrent and sequential chemotherapy. These findings showed no significant differences in toxicity rates between patients receiving concurrent versus sequential chemotherapy. Especially, toxicity rates were lower in patients with SCLC. This may be explained by differences in treatment regimens; SCLC protocols often differ from those used for NSCLC and may have a more favorable toxicity profile. Zhou et al[20] conducted a meta-analysis that examined the duration of chemotherapy for SCLC, indicating that the standardized, platinum-based chemotherapy regimens, often combined with etoposide, are typically better tolerated than other regimens used for NSCLC. Azar et al[21] showed that even though cisplatin-based treatment is associated with certain toxic effects, the treatment is generally well tolerated among patients with good performance status. In this cohort, higher toxicity rates may be partly explained by 3 patients having a planning target volume >540 cm^3, 1 patient developing neutropenia during concurrent CT (resulting in treatment interruption), and 1 experiencing severe hematologic toxicity. Additionally, 1 patient with a history of wedge resection developed atelectasis due to a large bulla during RT, and another was unable to complete RT owing to pancytopenia and neutropenic fever.

Frailty and Prognostic Implications of the G-8 Score

The prevalence of comorbidities is a critical factor influencing treatment outcomes and survival rates. Pilleron et al[22] demonstrated that a large proportion of elderly cancer patients—particularly in the United States—present with comorbidities that negatively influence prognosis and treatment efficacy. These findings were consistent with these results, indicating that patients with a lower medication burden, reflecting a healthier baseline status, tended to have better PFS outcomes. Schiphorst et al[23] emphasize that CGA helps in evaluating the overall health of elderly adults, which is essential for tailoring treatment plans that consider both oncological and non-oncological factors. National Comprehensive Cancer Network (NCCN) guidelines also stress the importance of CGA in managing elderly adults with cancer, focusing on the assessment of treatment risks and benefits.[24] Furthermore, Sourdet et al[25] suggested that a multidisciplinary approach to patient assessment results in more informed and effective treatment decisions. Lastly, Schulkes et al[26] also demonstrated that geriatric assessments can reveal previously unrecognized health deficits, which may influence the intensity of recommended treatments. This finding reinforces the idea that a lower medication burden and a positive self-assessment of health are indicative of a more favorable clinical profile, ultimately contributing to improved PFS.

In this study, a G-8 cutoff value of 7 was identified as relevant for the patient population. Overall log-rank analyses comparing G-8 score groups (<7 vs. 7-14 vs. >14) yielded *P*-values of .037 for PFS and 0.104 for OS. Similarly, Chakiba et al[27] advocated using a G-8 cutoff of 8, reporting improved sensitivity for identifying patients requiring geriatric assessment and for predicting survival outcomes. Their findings reinforce the argument that a lower cutoff can facilitate timely interventions for those at risk of functional decline, thereby improving overall treatment outcomes. Additionally, a study by Doi et al[28] emphasizes the importance of reevaluating cutoff values for geriatric assessment tools like the G-8. They argue that the traditional cutoff of 14 may not be appropriate for all populations, particularly in diverse cohorts where the health status of elderly adults can vary significantly.[28] Moreover, Garcia et al[29] conducted a systematic review demonstrating that the G-8 exhibits moderate to high sensitivity across multiple thresholds for identifying geriatric vulnerability. Their results suggested that a cutoff of 8 may provide better discrimination of elderly adults who would benefit from a full CGA, compared to the conventional threshold of 14.[29] This recommendation aligns with the broader clinical goal of enhancing patient safety and treatment efficacy in geriatric oncology. In this cohort, the cutoff of 14 in G-8 screening test did not emerge as an independent prognostic factor for lung cancer patients. This suggests that the current cutoff value for the G-8 may need to be reassessed to provide a more accurate estimation of toxicity and treatment outcomes.[30] As geriatric oncology continues to evolve, further research is warranted to refine frailty screening tools and enhance their predictive accuracy for treatment-related toxicity and clinical outcomes.

Clinical Implications

From a clinical perspective, patients with low G-8 scores may benefit from individualized treatment strategies, including cautious dose adaptation, closer toxicity monitoring, and proactive supportive care interventions. In frail elderly patients, optimizing symptom control, nutritional support, and functional maintenance is essential to balance efficacy and tolerability. Incorporating

routine geriatric assessment into treatment planning may help oncologists better identify patients who can safely undergo standard therapy versus those who require modified regimens.

The main limitation was being a retrospective study from a single institution. Additionally, due to the low number of toxicity cases, a comprehensive evaluation could not be performed.

Limitations

This study has several limitations. First, its retrospective, single-institution design introduces potential selection and information bias inherent to chart-based data collection. The relatively small sample size and low number of toxicity events may have limited the statistical power and the ability to perform a comprehensive subgroup evaluation. Second, while the exploratory ROC analysis identified a lower G-8 cutoff that appeared prognostic, this result was not validated in an independent cohort, and no internal validation procedures such as bootstrap or cross-validation were performed. Therefore, the proposed cutoff value should be interpreted as hypothesis-generating. Third, longitudinal changes in frailty status during treatment were not assessed; repeated G-8 evaluations throughout therapy could provide valuable insight into dynamic shifts in functional reserve and their association with outcomes. Finally, due to the retrospective nature of the study, standardized comorbidity indices and nutritional scales were unavailable; the number of daily medications was used as a pragmatic surrogate for systemic health status. Despite these limitations, the study provides real-world evidence on the prognostic and functional value of G-8 screening in elderly lung cancer patients undergoing radiotherapy with or without chemotherapy.

A significant proportion of the lung cancer patients aged > 65 years were identified as frail based on their G-8 scores. However, there was no significant correlation between the G-8 score and treatment outcomes or the incidence of acute toxicity. Notably, patients diagnosed with NSCLC had a higher rate of grade ≥3 toxicity. Given the persistent frailty observed in lung cancer patients, the G-8 score alone proved inadequate for effectively assessing this patient population. This underscores the necessity for the development of more effective tools that can accurately predict toxicity and mortality in the management of geriatric patients with cancer.

Data Availability Statement: The data that support the findings of this study are available on request from the corresponding author.

Ethics Committee Approval: Ethical committee approval was received from the İstanbul University - Cerrahpaşa Faculty of Medicine Clinical Research Ethics Committee (Approval No.: E-83045809-804.01-691244, Date: 18.05.2023).

Informed Consent: Written informed consent was obtained from all patients who participated in this study.

Peer-review: Externally peer-reviewed.

Author Contributions: Concept – E.D., C.Y.; Design – İ.D., C.Y.; Supervision – F.D., C.Y.; Materials – D.B., E.D.; Data Collection and/or Processing – C.Y., F.D.; Analysis and/or Interpretation – E.D., F.D., C.Y.; Literature Search – E.D., D.B.; Writing Manuscript – E.D., C.Y., D.B.; Critical Review – F.D., C.Y.

Declaration of Interests: The authors have no conflict of interest to declare.

Funding: The authors declared that this study has received no financial support.

References

1. Bray F, Laversanne M, Sung H, et al. Global cancer statistics 2022: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA Cancer J Clin*. 2024;74(3):229-263. [CrossRef]
2. Spigel DR, Faivre-Finn C, Gray JE, et al. Five-year survival outcomes from the PACIFIC trial: durvalumab after chemoradiotherapy in stage III non–small-cell lung cancer. *J Clin Oncol*. 2022;40(12):1301-1311. [CrossRef]
3. Cheng Y, Spigel DR, Cho BC, et al. Durvalumab after chemoradiotherapy in limited-stage small-cell lung cancer. *N Engl J Med*. 2024;391(14):1313-1327. [CrossRef]
4. Petrella F, Rizzo S, Attili I, et al. Stage III non-small-cell lung cancer: an overview of treatment options. *Curr Oncol*. 2023;30(3):3160-3175. [CrossRef]
5. Li L, Shan T, Zhang D, Ma F. Nowcasting and forecasting global aging and cancer burden: analysis of data from the GLOBOCAN and Global Burden of Disease Study. *J Natl Cancer Cent*. 2024;4(3):223-232. [CrossRef]
6. Zhang R, Yang Z, Shen X, Xia L, Cheng Y. Preoperative physical dysfunction characteristics and influence factors among elderly patients with early lung cancer: a latent class analysis. *J Multidiscip Healthc*. 2024;17:1743-1754. [CrossRef]
7. Wang J, Zhang W, Qian J, et al. Effects of combined anesthesia on pulmonary oxygenation function, hemodynamics, and respiratory compliance in elderly patients undergoing pulmonary lobectomy for lung cancer. *Med (Baltimore)*. 2024;103(45):e40325. [CrossRef]
8. Pham J, Conron M, Wright G, et al. Excess mortality and undertreatment in elderly lung cancer patients: treatment nihilism in the modern era? *ERJ Open Res*. 2021;7(2):00393-2020. [CrossRef]
9. Rudnicka E, Napierała P, Podfigurna A, Męczekalski B, Smolarczyk R, Grymowicz M. The World Health Organization (WHO) approach to healthy ageing. *Maturitas*. 2020;139:6-11. [CrossRef]
10. Bellera CA, Rainfray M, Mathoulin-Pélissier S, et al. Screening older cancer patients: first evaluation of the G-8 geriatric screening tool. *Ann Oncol*. 2012;23(8):2166-2172. [CrossRef]
11. Outlaw D, Abdallah M, Gil-Jr LA, et al. The evolution of geriatric oncology and geriatric assessment over the past decade. *Semin Radiat Oncol*. 2022;32(2):98-108. [CrossRef]
12. Extermann M, Aapro M, Bernabei R, et al. Use of comprehensive geriatric assessment in older cancer patients: Recommendations from the task force on CGA of the International Society of Geriatric Oncology (SIOG). *Crit Rev Oncol Hematol*. 2005;55(3):241-252. [CrossRef]
13. Pallis AG, Gridelli C, Wedding U, et al. Management of elderly patients with NSCLC; updated expert's opinion paper: EORTC Elderly Task Force, Lung Cancer Group and International Society for Geriatric Oncology. *Ann Oncol*. 2014;25(7):1270-1283. [CrossRef]
14. Verduzco-Aguirre HC, Navarrete-Reyes AP, Chavarri-Guerra Y, Ávila-Funes JA, Soto-Perez-De-Celis E. The effect of a geriatric oncology clinic on treatment decisions in Mexican older adults with cancer. *J Am Geriatr Soc*. 2019;67(5):992-997. [CrossRef]
15. Pezzuto A, Terzo F, Graziani ML, Ricci A, Bruno P, Mariotta S. Lung cancer requires multidisciplinary treatment to improve patient survival: a case report. *Oncol Lett*. 2017;14(3):3035-3038. [CrossRef]
16. van Walree IC, Scheepers E, van Huis-Tanja L, et al. A systematic review on the association of the G8 with geriatric assessment, prognosis and course of treatment in older patients with cancer. *J Geriatr Oncol*. 2019;10(6):847-858. [CrossRef]
17. Momota M, Hatakeyama S, Soma O, et al. Geriatric 8 screening of frailty in patients with prostate cancer. *Int J Urol*. 2020;27(8):642-648. [CrossRef]
18. Ruiz J, Miller AA, Tooze JA, et al. Frailty assessment predicts toxicity during first cycle chemotherapy for advanced lung cancer regardless of chronologic age. *J Geriatr Oncol*. 2019;10(1):48-54. [CrossRef]
19. Banna GL, Cantale O, Haydock MM, et al. International survey on frailty assessment in patients with cancer. *Oncologist*. 2022;27(10):e796-e803. [CrossRef]
20. Zhou H, Zeng C, Wei Y, Zhou J, Yao W. Duration of chemotherapy for small cell lung cancer: a meta-analysis. *PLoS One*. 2013;8(8):e73805. [CrossRef]
21. Azar I, Yazdanpanah O, Jang H, et al. Comparison of carboplatin with cisplatin in small cell lung cancer in US veterans. *JAMA Netw Open*. 2022;5(10):e2237699. [CrossRef]
22. Pilleron S, Sarfati D, Janssen-Heijnen M, et al. Global cancer incidence in older adults, 2012 and 2035: a population-based study. *Int J Cancer*. 2019;144(1):49-58. [CrossRef]

23. Schiphorst AH, Ten Bokkel Huinink D, Breumelhof R, Burgmans JP, Pronk A, Hamaker ME. Geriatric consultation can aid in complex treatment decisions for elderly cancer patients. *Eur J Cancer Care (Engl)*. 2016;25(3):365-370. [CrossRef]
24. Dotan E, Walter LC, Browner IS, et al. NCCN Guidelines® insights: older adult oncology, version 1.2021. *J Natl Compr Canc Netw*. 2021;19(9):1006-1019. [CrossRef]
25. Sourdet S, Brechemier D, Steinmeyer Z, Gerard S, Balardy L. Impact of the comprehensive geriatric assessment on treatment decision in geriatric oncology. *BMC Cancer*. 2020;20(1):384. [CrossRef]
26. Schulkes KJ, Souwer ETD, Hamaker ME, et al. The effect of A geriatric assessment on treatment decisions for patients with lung cancer. *Lung*. 2017;195(2):225-231. [CrossRef]
27. Chakiba C, Bellera C, Etchepare F, Mathoulin-Pelissier S, Rainfray M, Soubeyran P. The prognostic value of G8 for functional decline. *J Geriatr Oncol*. 2019;10(6):921-925. [CrossRef]
28. Doi A, Mizukami T, Takeda H, et al. Clinical utility of geriatric assessment tools in older patients with gastrointestinal cancer. *Front Oncol*. 2023;13:1110236. [CrossRef]
29. Garcia MV, Agar MR, Soo WK, To T, Phillips JL. Screening tools for identifying older adults with cancer who may benefit from a geriatric assessment: a systematic review. *JAMA Oncol*. 2021;7(4):616-627. [CrossRef]
30. Fowler H, Belot A, Ellis L, et al. Comorbidity prevalence among cancer patients: a population-based cohort study of four cancers. *BMC Cancer*. 2020;20(1):2. [CrossRef]