Original Study

Prognostic Value of Geriatric 8 and Identification of Seniors at Risk for Hospitalized Patients Screening Tools for Patients With Lung Cancer

Karlijn J.G. Schulkes,[1] Esteban T.D. Souwer,[2] Leontine J.R. van Elden,[3] Henk Codrington,[4] Simone van der Sar-van der Brugge,[5] Jan-Willem J. Lammers,[6] Johanneke E.A. Portielje,[2] Frederiek van den Bos,[2] Marije E. Hamaker[1]

Abstract

We analyzed the predictive value of the Geriatric 8 (G8) and Identification of Seniors at Risk for Hospitalized Patients (ISAR-HP) in 142 elderly patients with lung cancer. Potentially frail patients, identified by an impaired G8 or ISAR-HP, had a significantly greater risk of 1-year mortality. Using the ISAR-HP as the only screening tool would be insufficient; however, an impaired ISAR-HP and G8 would lead to fine tuning the selection of patients with multiple geriatric impairments.

Background: Because of the time-consuming aspect of geriatric assessments, cancer specialists are seeking shorter screening tools to distinguish fit and frail patients. We analyzed the predictive value of the Geriatric 8 (G8) and Identification of Seniors at Risk for Hospitalized Patients (ISAR-HP) in elderly patients with lung cancer. **Patients and Methods:** From January 2014 to April 2016, the data from patients with lung cancer aged > 70 years at 2 teaching hospitals in the Netherlands were included in a database. The patients were classified as potentially frail if they had a G8 of $\leq$ 14 or ISAR-HP of $\geq$ 2. **Results:** Of the 142 included patients (median age, 77 years; interquartile range, 73-82 years), 108 (76%) were potentially frail. After correction for possible confounders, the potentially frail patients had a significantly greater risk of 1-year mortality (hazard ratio [HR], 4.08; 95% confidence interval [CI] 1.67-9.99; P = .02). Higher disease stage (HR, 1.72; 95% CI, 1.40-2.12; P < .001) was also a significant predictor of mortality; however, initial treatment (standard or otherwise) and age were not. When using both screening instruments separately, an impaired score on the G8 and higher disease stage were the variables remaining in the regression analyses (HR for impaired G8, 3.01; 95% CI, 1.35-6.72; P < .001). Patients with impaired scores on the ISAR-HP and G8 had more geriatric impairments than did patients with only an impaired G8 score. **Conclusion:** G8 screening is useful for the prognostication of elderly patients with lung cancer and could be used in combination with ISAR-HP to increase specificity at the cost of sensitivity. Using the ISAR-HP as the only screening tool would be insufficient.

Clinical Lung Cancer, Vol. ■, No. ■, 1-7 © 2017 Elsevier Inc. All rights reserved.
Keywords: Frail, NSCLC, Prognostication, Pulmonary malignancies, Toxicity

[1]Department of Geriatric Medicine, Diakonessenhuis Utrecht, Utrecht, Netherlands
[2]Department of Internal Medicine, Haga Hospital, The Hague, Netherlands
[3]Department of Pulmonology, Diakonessenhuis Utrecht, Utrecht, Netherlands
[4]Department of Pulmonology, Haga Hospital, The Hague, Netherlands
[5]Department of Pulmonology, Amphia Hospital, Breda, Netherlands
[6]Department of Pulmonology, University Medical Center Utrecht, Utrecht, Netherlands

Address for correspondence: Karlijn J.G. Schulkes, MD, Department of Geriatric Medicine, Diakonessenhuis Utrecht, Bosboomstraat 1, Utrecht 3582 KE, Netherlands
E-mail contact: kschulkes@diakhuis.nl

Introduction

Predicting the success rate of lung cancer treatment is difficult, particularly for older patients.[1-4] Differences in physiologic reserves, comorbidities, functional capacity, and the presence of geriatric syndromes have a great effect on treatment effects and toxicity and, hence, cancer outcomes.[1,5] Lung cancer treatment guidelines are less applicable to the general elderly lung cancer population because they are based on clinical trials from which elderly and those with comorbidities have often been excluded.[6,7] Therefore, a great need exists for individual algorithms to help in predicting whether a certain treatment will be beneficial.[8]

Prognostic Value of G8 and ISAR-HP

In 2005, the International Society of Geriatric Oncology advised incorporating a geriatric assessment in the clinical workup of elderly patients with cancer.[9] Geriatric assessments can detect multiple health issues, even in lung cancer patients with a good performance (PS) status.[10] The outcomes of this assessment can be used for prognostication, treatment decisions, and optimizing health status and quality of life.[10] However, these geriatric assessments are often seen as too time-consuming; therefore, cancer specialists have been seeking a shorter screening tool that can separate fit older patients with cancer able to receive standard cancer treatment from vulnerable patients who should subsequently undergo a full assessment to guide tailoring of their treatment.[11,12]

Two instruments that have been suggested are the Geriatric 8 (G8; Table 1)[13] and Identification of Seniors At Risk–Hospital Patients (ISAR-HP; Table 2).[14] The G8 screening tool was developed specifically for older cancer patients.[13] It places significant weight on nutritional status (46% of the total score) and also focuses on mobility, neuropsychological problems, medication use, self-rated health status, and age. It has shown good sensitivity for geriatric impairments across multiple domains; thus, most patients

Table 1	Geriatric 8 Screening Tool
Item	**Possible Score and Response**
1. Has food intake declined during the past 3 months because of loss of appetite, digestive problems, chewing, or swallowing difficulties?	0 = Severe decrease in food intake
	1 = Moderate decrease in food intake
	2 = No decrease in food intake
2. Weight loss during past 3 months?	0 = Weight loss >3 kg
	1 = Does not know
	2 = Weight loss 1-3 kg
	3 = No weight loss
3. Mobility?	0 = Bed or chair bound
	1 = Able to get out of bed or chair but does not go out
	2 = Goes out
4. Neuropsychological problems?	0 = Severe dementia or depression
	1 = Mild dementia
	2 = No psychological problems
5. Body mass index?	0 = <19 kg/m²
	1 = 19 to <21 kg/m²
	2 = 21 to <23 kg/m²
	3 = ≥23 kg/m²
6. Takes >3 prescription drugs daily?	0 = Yes
	1 = No
7. Compared with other people of the same age, how does the patient consider their health status?	0.0 = Not as good
	0.5 = Does not know
	1.0 = As good
	2.0 = Better
8. Age	0 = >85 y
	1 = 80-85 y
	2 = <80 y
Total score (range, 0-17)	Cutoff, ≤14 indicates potentially frail

Table 2	Identification of Seniors at Risk for Hospitalized Patients Screening Tool
Item	**Possible Responses and Scores**
1. Before hospital admission, did you need assistance for IADL (eg, assistance in housekeeping, preparing meals, shopping) on a regular basis?	Yes = 1; no = 0
2. Do you use a walking device (eg, a cane, walking frame, crutches)?	Yes = 2; no = 0
3. Do you need assistance for traveling?	Yes = 1; no = 0
4. Did you pursue education after age 14?	Yes = 0; no = 1
Total score (range, 0-5)	Cutoff, ≥2 indicates potentially frail

Abbreviation: IADL = instrumental activities of daily living.

with geriatric impairments will be identified using this screening tool.[13,15,16] However, some concerns were raised regarding its specificity, because many patients without geriatric impairments were incorrectly identified as requiring further assessment.[16] The ISAR-HP was initially developed for the emergency department and was later revised for hospitalized patients. It is a 4-item questionnaire that has proved beneficial in identifying older patients at risk of functional decline after hospital admission.[14]

The prognostic value of the G8 and ISAR-HP screening tools has not been evaluated specifically in patients with lung cancer. Because pulmonary malignancies generally have a rapid disease course and poor overall prognosis, previous study results for other types of cancer might not be applicable to patients with lung cancer.[17]

In 2 large teaching hospitals in the Netherlands, these 2 screening tools are routinely used for older patients with lung cancer. In the present analysis, we sought to determine the value of the tools in patient prognostication, the selection of patients for a geriatric assessment, and the prediction of treatment completion.

Patients and Methods

From January 2014 to April 2016, the data for all patients aged ≥ 70 years with a diagnosis of lung cancer at the Haga Hospital in The Hague and the Diakonessenhuis Utrecht were included in a database for quality control purposes.

Specialized nurses, pulmonologists (thoracic oncologists), or geriatricians administered the G8 and ISAR-HP screening tools to these patients before the start of treatment. The maximum score for the G8 is 17 points, with a score of ≤ 14 defined as impaired.[13] The maximum score for the ISAR-HP is 4, with a score of ≥ 2 defined as impaired.[14]

If patients had a normal score on both the G8 and the ISAR-HP, they were classified as "fit." Patients were classified as "potentially frail" if they had an impaired score on the G8 or the ISAR-HP, or both, and these patients were subsequently referred for a geriatric assessment.

We sought to analyze the predictive value of the G8 and ISAR-HP in the prognostication of 1-year survival and the relationship between an impaired screening results and the outcomes of a geriatric assessment. One-year survival was defined from the diagnosis