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Original Research

Prognostic value of health-related quality of life for overall survival in elderly non-small-cell lung cancer patients

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Abstract ***Background:*** We investigated whether the health-related quality of life (HRQoL) score is a prognostic factor for overall survival (OS) in elderly patients with advanced non-small-cell lung cancer (NSCLC).

Methods: We included 451 NSCLC patients aged 70–89 years enrolled in the Intergroupe Francophone de Cancérologie Thoracique 0501 trial, using scores of the European Organisation for Research and Treatment of Cancer Quality of Life Questionnaire Core 30 at baseline to investigate the prognostic value of HRQoL for OS, in addition to conventional factors. Cox regression model was used for both univariate and multivariate analyses of OS.

Results: Global health status (GH) dimension score at baseline was associated with favourable OS when adjusted for clinical, functional, and histological factors (hazard ratio [HR]: 0.986; 95% confidence interval [CI]: 0.980–0.992).

We distinguished three groups according to GH score: high (GH <46), intermediate (46 ≤GH ≤67), and low (GH >67) mortality risk. The median OS values were 14.5, 8.2, and 5.3 months in the low-, intermediate-, and high-risk categories, respectively (log-rank P <0.0001).

In the high-risk group, doublet chemotherapy was not associated with favourable OS (HR: 0.70; 95% CI: 0.49–1.003; P=0.052), whereas in the intermediate- and low-risk groups, doublet chemotherapy was associated with favourable OS (HR: 0.72; 95% CI: 0.54–0.96; P=0.023 and HR: 0.50; 95% CI: 0.30–0.84; P=0.0089, respectively).

Conclusion: This study supports the additional prognostic value of HRQoL data at diagnosis to identify vulnerable subpopulations in elderly NSCLC patients. HRQoL could thus be valuable in selecting patients who will benefit from doublet chemotherapy.

1. Background

The number of studies using health-related quality of life (HRQoL) assessment has been growing over the last decade. The Food and Drug Administration considers HRQoL to be an end-point for assessing direct clinical benefits for the patient [1–3]. Moreover, there has been evidence to suggest that assessing baseline HRQoL dimension scores in cancer patients improves the prediction of overall survival (OS) [4–9]. Quinten et al. carried out a meta-analysis involving over 10,000 cancer patients (16% lung cancer), revealing that baseline HRQoL was a prognosticator of longer survival [10]. In non-small-cell lung cancer (NSCLC) patients, several studies have demonstrated that HRQoL represents a significant prognosticator of favourable OS [6,9,11–13]. Sloan et al. prospectively observed 2,442 patients with stage I–IV NSCLC, 47% ≤65 years old and 53% >65 years old, all completing a single-item measure of overall HRQoL from the Lung Cancer Symptom Scale questionnaire within the first 6 months post-diagnosis. They demonstrated that QoL deficits at diagnosis were significantly associated with shorter OS (hazard ratio [HR]: 1.55; P < 0.001). Yet no study has specifically focused on elderly advanced NSCLC patients.

We sought to investigate the additional prognostic value of baseline HRQoL assessed by European Organisation for Research and Treatment of Cancer (EORTC) Quality of Life Questionnaire Core 30 (QLQ-C30) in elderly advanced NSCLC patients treated with chemotherapy in the randomised Intergroupe Francophone de Cancérologie Thoracique (IFCT) 0501 trial.

2. Methods

2.1. Sample

The IFCT 0501 study design has been previously described [14]. Patients aged 70–89 years with stage IV NSCLC or stage III unsuitable for radical radiation therapy and performance status (PS) ≤2 were eligible for this phase III trial. They were randomly assigned 1:1 to four 28-day cycles of monthly carboplatin plus weekly paclitaxel or five 21-day cycles of single agent vinorelbine or gemcitabine, on days 1 and 8 of each cycle. Patients were stratified by centre, World Health Organization (WHO) PS score (0–1 versus 2), stage (III versus IV), and age (≤80 versus >80 years).

The protocol was approved by the *Comité de Protection des Personnes* of Ile-de-France X, Aulnay-sous-Bois, France, the trial being authorised by the French National Authority for Health. All patients provided written informed consent.

2.2. Health-related quality of life

HRQoL was assessed using EORTC QLQ-C30 questionnaire [15] at randomisation, then at 6 and 18 weeks.