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Original Research

Use of nivolumab in elderly patients with advanced squamous non–small-cell lung cancer: results from the Italian cohort of an expanded access programme

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Abstract ***Aim:*** This analysis evaluated the efficacy and safety of nivolumab, an immune checkpoint inhibitor, in elderly patients with stage IIIB or IV squamous non–small-cell lung cancer (NSCLC) enrolled in the expanded access programme (EAP) in Italy.
Methods: Nivolumab was available on physician request. Safety data included adverse events (AEs). Efficacy data included investigator-assessed tumour response, progression date and survival information. Results were analysed for patients aged <65, 65–<75 and ≥75 years and for the overall population.
Results: A total of 371 patients with squamous NSCLC were enrolled at 96 centres between April 2015 and September 2015; 34% (n = 126), 47% (n = 175) and 19% (n = 70) were aged <65, 65–<75 and ≥75 years, respectively. Efficacy was similar among patients aged <65, 65–<75 and ≥75 years and the overall population (objective response rates: 18%, 18%, 19% and 18%, respectively; disease control rates: 49%, 47%, 43% and 47%, respectively). Median overall survival was reduced in patients aged ≥75 years (5.8 months) versus patients aged <65; years (8.6 months), patients aged 65–<75 years (8.0 months) and the overall population (7.9 months). The incidence of grade 3–4 treatment-related AEs was low in patients aged 65, 65–<75 and ≥75 years and the overall population (3%, 9%, 3%, 6%, respectively). Discontinuation rates due to treatment-related AEs were low irrespective of age (4–5%).
Conclusions: These EAP results suggest that elderly patients with advanced squamous NSCLC benefit from nivolumab, with tolerability similar to that in the overall population.

1. Introduction

Lung cancer is primarily a disease of the elderly [1]. In the West, the median age at diagnosis is 70 years, with most new cases occurring in patients aged ≥65 years [1]. The growing elderly population is contributing to the rise in the incidence of lung cancer in industrialised nations [2]. The main type of lung cancer is non–small-cell lung cancer (NSCLC), which comprises 85% of all cases [3]. Despite the high incidence of NSCLC in the elderly, this section of the population is frequently under-represented in clinical trials [4,5]. As a result, comprehensive data supporting the use of recommended standard treatments for advanced NSCLC are lacking for older patients [6].

Although elderly patients with advanced NSCLC may benefit from first-line chemotherapy, available data suggest that these patients may not tolerate some chemotherapy regimens [7]. There are a dearth of published data on the use of second-line treatment in elderly patients with advanced NSCLC and no specific treatment recommendations for these patients in this setting [6]. Because elderly patients are often symptomatic and have significant comorbidities [8], they may be unsuitable for second-line therapies with considerable toxicities, such as docetaxel [9]. Squamous NSCLC, which comprises almost 30% of all NSCLC cases [10], has fewer second-line treatment options than non-squamous histologies [11], and targeted therapies, such as erlotinib, are rarely indicated because squamous NSCLC typically lacks genetic alterations associated with response to these agents [12].

Nivolumab is a fully human programmed death-1 immune checkpoint inhibitor antibody that is approved in the United States (US), the European Union (EU) and other countries for the treatment of patients with advanced NSCLC that has progressed on or after prior chemotherapy [13,14].

Nivolumab demonstrated a survival benefit compared with docetaxel among patients with previously treated advanced squamous NSCLC in the phase III CheckMate 017 study, reducing the risk of death by 41% (hazard ratio: 0.59; 95% confidence interval [CI]: 0.44–0.79; $p < 0.001$) [15]. This benefit was sustained with long-term follow-up: the 2-year overall survival (OS) rate was 23% with nivolumab and 8% with docetaxel [16]. Similar results were observed in patients with previously treated advanced non-squamous NSCLC in another phase III study, CheckMate 057 [16,17]. A nivolumab expanded access programme (EAP) in advanced NSCLC (squamous and non-squamous histology) allowed patients who were unable to take part in local nivolumab clinical trials to gain access to treatment before it became commercially available. We present an analysis of the efficacy and safety of nivolumab in elderly patients with advanced squamous NSCLC enrolled into the EAP in Italy. Preliminary data from the entire Italian cohort of patients with squamous NSCLC in the EAP have been described elsewhere [18].

2. Methods

2.1. Study design

Nivolumab was made available on physician request through the EAP. Nivolumab 3 mg/kg was administered intravenously every 2 weeks for ≤24 months or until