Impact of advanced/metastatic non–small cell lung cancer (a/mNSCLC) on patients in the US and UK: survey results

Umit Tapan,[1] Yao Wang,[2] Yan Meng,[3] Hongbo Yang,[2] Manasee Shah,[4] Kelly F. Bell,[4] Anne Liao,[5] Mingchen Ye,[2] Caitlyn Solem[6]

[1]Section of Hematology & Medical Oncology, Boston University Chobanian & Avedisian School of Medicine, and Boston Medical Center, Boston, MA, USA; [2]Analysis Group, Boston, MA, USA; [3]Analysis Group, London, UK; [4]GSK, Collegeville, PA, USA; [5]GSK, Zug, Switzerland; [6]GSK, Bethesda, MD, USA

Patients with a/mNSCLC face a considerable burden, including reduced quality of life, substantial impairment in daily activity and work activity, and elevated levels of pain/discomfort, negatively impacting various aspects of their daily lives

Digital poster

Aim

- To assess the cancer-related burden on patients with a/mNSCLC

Study design

- This was a structured online survey–based study conducted between June 2023 and August 2023
- Patients were eligible if they resided in the US or UK, were aged ≥18 years at the time of the survey, had a self-reported diagnosis of a/mNSCLC, had received 1L induction therapy with or without another agent (such as pemetrexed), had stable disease or responded to 1L induction therapy, and were willing and able to consent to being part of the study
- Patients with an active second cancer other than NSCLC that required treatment in the previous 5 years were ineligible
- The structured online survey collected data on mode of transportation used, travel time to the treatment clinic, HRQOL, and WPAI. Data collected were deidentified and HIPAA compliant
- Patient HRQOL was assessed using the EQ-5D-3L questionnaire
- The 2-page questionnaire included the EQ-5D descriptive system and the EQ VAS[1]
  - The EQ-5D-3L descriptive system included 5 dimensions: mobility, self-care, usual activities, pain/discomfort, and anxiety/depression. Each dimension included 3 levels: no problems, some problems, and extreme problems
    - To obtain the EQ-5D utility index, a formula is applied to assign values (weights) to each level of each dimension (the collection of index values/weights for all possible EQ-5D states is referred to as a value set, which varies by country) based on the guideline from the EuroQol Research Foundation. Each health state can be converted to a preference-weighted index score; the higher the utility index, the better the quality of life, with 1 being the best possible health state and 0 being equivalent to the state of being dead.
- Continuous variables were summarized using means and SD, and categorical variables were summarized using counts and percentages

Demographics

- Demographic, clinical, and treatment characteristics of patients who met the eligibility criteria and were surveyed (N=82) are shown in Figure 1
  - In total, 58.5% of patients were from the US, and 41.5% were from the UK
  - More than half of the patients (67.1%) were employed full/part-time
  - Approximately one-quarter of patients (25.6%) had brain metastases
  - Most patients (61.0%) had received pembrolizumab + carboplatin-based therapy in the 1L induction therapy setting, and most (53.7%) achieved a complete response

Figure 1: Patient demographic, clinical, and treatment characteristics

Characteristic	Patients (N=82)
Country of residence, n (%)	
US	48 (58.5)
UK	34 (41.5)
Age, mean (SD), y	46.1 (11.8)
Sex, n (%)	
Male	64 (78.0)
Female	18 (22.0)
Employment status, n (%)[a]	
Full-time	47 (57.3)
Unemployed	15 (18.3)
Part-time	8 (9.8)
Retired	7 (8.5)
Self-employed	4 (4.9)
Disabled	1 (1.2)
Tumor histology, n (%)	
Squamous	42 (51.2)
Nonsquamous	37 (45.1)
Unknown/not sure	3 (3.7)
Brain metastases, n (%)	
Yes	21 (25.6)
No	33 (40.2)
Unknown/not sure	28 (34.1)
NSCLC stage, n (%)	
III	15 (18.3)
IV	39 (47.6)
III or IV	28 (34.1)
1L induction therapy received after diagnosis, n (%)	
Pembrolizumab + carboplatin-based therapy	50 (61.0)
Pembrolizumab + cisplatin-based therapy	32 (39.0)
Response to 1L induction therapy, n (%)	
Complete response	44 (53.7)
Partial response	34 (41.5)
Stable disease	4 (4.9)

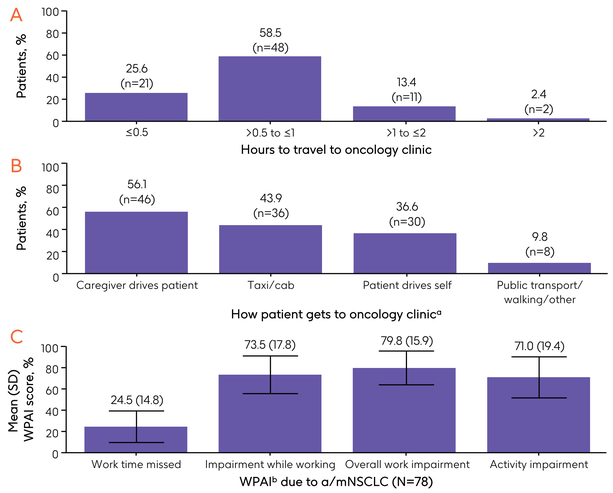
[a]Multiple choices were allowed; thus, the sum may exceed the total N or 100%.
1L, first line; NSCLC, non–small cell lung cancer; SD, standard deviation.

Results

Impact on patient travel and work-related outcomes

- Most patients (84.1%) were able to get to the treatment clinic within an hour (Figure 2A)
  - 25.6% traveled ≤0.5 hour, 58.5% traveled >0.5 to ≤1 hour, 13.4% traveled >1 to ≤2 hours, and 2.4% traveled >2 hours
- Most patients (56.1%) needed a caregiver to drive them to the clinic (Figure 2B)
- Substantial impairment in daily activities (71.0%) was observed in patients assessed for WPAI (n=78), and among those who were assessed for work-related outcomes (n=55) (Figure 2C)
  - Because of the disease, the mean percent of work time missed was 24.5%, mean percent impairment while working was 73.5%, and mean percent overall work impairment was 79.8%

Figure 2: Patient-reported impact of a/mNSCLC on travel to oncology clinic and work time

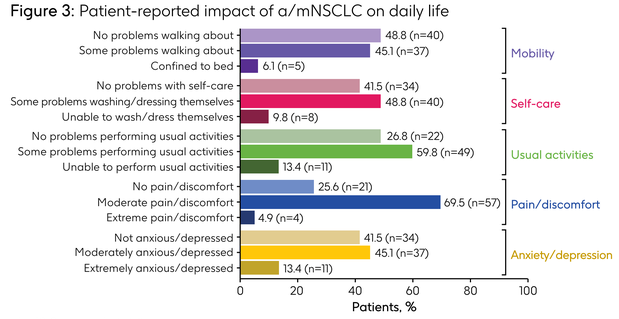


Higher WPAI scores indicate greater impairment and less productivity. [a]Multiple choices were allowed; thus, the sum may exceed the total N or 100%. [b]Four patients were removed from the WPAI analysis because of the high number of potential working hours (>70 hours) per week. The recall period was the last 7 days. Percent work time missed was assessed among respondents who were employed at the time of the survey; impairment while working and overall work impairment were only assessed among respondents who were employed and worked >0 hours in the past 7 days. Percent activity impairment was assessed among all respondents.
a/mNSCLC, advanced/metastatic non–small cell lung cancer; SD, standard deviation, WPAI, Work Productivity and Activity Impairment.

Impact on daily life

- More than half of patients reported some or extreme problems across all 5 EQ-5D-3L domains (Figure 3)
- The mean (SD) EQ-5D-3L utility score was 0.637 (0.216) using the US value set and 0.516 (0.308) using the UK value set

Figure 3: Patient-reported impact of a/mNSCLC on daily life



a/mNSCLC, advanced/metastatic non–small cell lung cancer.

Exploratory subgroup analysis stratified by brain metastasis status

- A subgroup analysis stratified by brain metastasis status (21 patients with and 33 without brain metastases) is shown in Table 1
  - Patients with brain metastases were significantly younger than patients without brain metastases (mean age, 41.8 vs 54.0 years; *P*<0.05)
  - In the week before the survey, patients with brain metastases had more impairment due to NSCLC than patients without brain metastases; mean percent impairment while working was 77.3% vs 59.3% (*P*<0.05) and mean percent overall work impairment was 83.8% vs 65.5% (*P*<0.05)
  - The mean EQ-5D-3L utility score was significantly lower for patients with brain metastases than for those without for both the US (0.566 vs 0.724; *P*<0.05) and UK (0.433 vs 0.625; *P*<0.05) value sets

Table 1. Subgroup analysis of patients stratified by brain metastases

Characteristic	Patients with brain metastases (n=21)	Patients without brain metastases (n=33)	*P* value
Patient demographics			
Country of residence, n (%)			
US	7 (33.3)	22 (66.7)	<0.05
UK	14 (66.7)	11 (33.3)	<0.05
Age, mean (SD), y	41.8 (9.5)	54.0 (12.8)	<0.05
Sex, n (%)			
Male	16 (76.2)	26 (78.8)	1.00
Female	5 (23.8)	7 (21.2)	1.00
Employment status, n (%)[a]			
Full-time	9 (42.9)	12 (36.4)	0.63
Unemployed	4 (19.0)	11 (33.3)	0.25
Part-time	4 (19.0)	3 (9.1)	0.41
Retired	2 (9.5)	5 (15.2)	0.69
Self-employed	2 (9.5)	1 (3.0)	0.55
Disabled	0 (0.0)	1 (3.0)	1.00
Clinical characteristics			
Tumor histology, n (%)			
Squamous	13 (61.9)	10 (30.3)	<0.05
Nonsquamous	7 (33.3)	21 (63.6)	<0.05
Unknown/not sure	1 (4.8)	2 (6.1)	1.00
NSCLC stage, n (%)[b]			
III	0 (0.0)	15 (45.5)	<0.05
IV	21 (100.0)	18 (54.5)	<0.05
1L induction therapy received after diagnosis, n (%)			
Pembrolizumab + carboplatin-based therapy	18 (85.7)	15 (45.5)	<0.05
Pembrolizumab + cisplatin-based therapy	3 (14.3)	18 (54.5)	<0.05
Response to 1L induction therapy, n (%)			
Complete response	12 (57.1)	17 (51.5)	0.69
Partial response	8 (38.1)	13 (39.4)	0.92
Stable disease	1 (4.8)	3 (9.1)	1.00
Patient-reported outcomes			
Hours to travel to the oncology clinic, n (%)			
≤0.5	5 (23.8)	12 (36.4)	0.33
>0.5 to ≤1	11 (52.4)	17 (51.5)	0.95
>1 to ≤2	4 (19.0)	4 (12.1)	0.70
>2	1 (4.8)	0 (0.0)	0.39
How patient gets to oncology clinic, n (%)			
Caregiver drives patient	11 (52.4)	25 (75.8)	0.08
Taxi/cab	9 (42.9)	16 (48.5)	0.69
Patient drives self	7 (33.3)	9 (27.3)	0.63
Public transport/walking/other	1 (4.8)	3 (9.1)	1.00
Walk	0 (0.0)	1 (3.0)	1.00
Other	0 (0.0)	1 (3.0)	1.00
WPAI due to a/mNSCLC, mean (SD),[c,d] %			
Overall work impairment	83.8 (9.2)	65.5 (23.8)	<0.05
Impairment while working	77.3 (12.8)	59.3 (23.4)	<0.05
Work time missed	27.7 (15.0)	18.7 (16.9)	0.058
Activity impairment	74.3 (17.5)	63.0 (63.0)	0.144
EQ-5D-3L utility score, mean (SD)[e]			
US value set	0.566 (0.212)	0.724 (0.153)	<0.05
UK value set	0.433 (0.317)	0.625 (0.236)	<0.05

[a]Multiple choices were allowed; thus, the sum may exceed the total N or 100%.
[b]Twenty-eight patients were excluded from the stratified analysis when the disease stage and brain metastasis did not align (ie, patient report indicating NSCLC stage III and brain metastases).
[c]The recall period was the last 7 days. Percent work time missed was assessed among respondents who were employed at the time of the survey; impairment while working and overall work impairment were only assessed among respondents who were employed and worked >0 hours in the past 7 days. Percent activity impairment was assessed among all respondents.
[d]Higher WPAI scores indicate greater impairment and less productivity.
[e]The higher the utility score, the better the quality of life, with 1 being the best possible health state and 0 being equivalent to the state of being dead.
a/mNSCLC, advanced/metastatic non–small cell lung cancer; EQ-5D-3L, EuroQol-5 dimension-3 levels; HRQOL, health-related quality of life; SD, standard deviation; WPAI, Work Productivity and Activity Impairment.

Background

- Lung cancer is one of the leading causes of cancer-related deaths worldwide[2]
- NSCLC accounts for 80% to 85% of all lung cancer cases[3]
- Most patients (~69%) are diagnosed at an advanced stage of disease,[4] which is associated with a poor prognosis[3,5]
- Patients with a/mNSCLC often have a symptom burden that significantly impacts their HRQOL[6,7]
- However, limited data exist that describe the overall patient burden associated with a/mNSCLC

Conclusions

- This survey revealed that a/mNSCLC is associated with a high real-world burden
- Notably, one-quarter of patients had brain metastases, which may have contributed to the impairment reported
- Limitations of this study include a small sample size that may not fully represent the general a/mNSCLC patient population, reliance on self-reported responses that are susceptible to recall bias, and unverified patient-reported demographic and disease characteristics
- These survey results highlight the need for novel treatments, particularly those that could treat or prevent brain metastases, to potentially mitigate this patient burden

Abbreviations

1L, first line; a/mNSCLC, advanced/metastatic non–small cell lung cancer; EQ-5D-3L, EuroQol-5 dimension-3 levels; EQ-5D, EuroQol-5 dimension; EQ VAS, EuroQol visual analog scale; HIPAA, Health Insurance Portability and Accountability Act; HRQOL, health-related quality of life; NSCLC, non–small cell lung cancer; SD, standard deviation; UK, United Kingdom; US, United States; VAS, visual analog scale; WPAI, Work Productivity and Activity Impairment.

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Presenting author email: manasee.v.shah@gsk.com