Treatment patterns and clinical characteristics of patients diagnosed with metastatic NSCLC in HMO from Colombia: a non-interventional study.

Gonzalez FJ[1], Perez LE[1], Bello C[1], Reyes Sanchez JM[2], Bolaños-López J[1], Pardo S[2], Arciniegas J[2], Garcia M[2], Idrobo H[1]

[1]Centro de Biociencias Sura, Colombia, [2]Pfizer SAS, Colombia.

BACKGROUND

Treatment for NSCLC depends on the stage at the time of diagnosis; this disease is most commonly diagnosed in advanced stages, where surgery and local radiotherapy are no longer remedial or indicated[1,2]. In such NSCLC cases, the treatment is most likely to include chemotherapy combined with a platinum based regimen, in addition to therapy targeted to biomarkers[3].

For patients with EGFR, ALK, and ROS1 mutations, Colombia has included treatment with Tyrosine kinase inhibitors (TKI)[4]. However, other therapies for mutations with BRAF inhibitors, HER2 inhibitors, or NTRK inhibitors are still pending approval. Even in clinical scenarios of NSCLC with ALK rearrangement, only crizotinib and alectinib are available, which limits treatment for second or third line therapies[5].

OBJECTIVE

- This study aimed to measure the treatment patterns and clinical characteristics of Colombian patients with metastatic non-small cell lung cancer in one HMO between 2018-2022

METHODS

- It is an observational, descriptive, retrospective study which collected the information in one Health Management Organization (HMO) in Colombia from patients with diagnosis of metastatic non-small cells lung cancer (NSCLC) between 2018 to 2022.

- The data from patients with diagnosis of metastatic non-small cells lung cancer (NSCLC) between 2018 to 2022 was collected. Patients were identified, and information was collected by reviewing databases using the C34 code and all its ICD 10 subsets for Malignant neoplasm of bronchus and lung combined with advanced/metastatic code C79.9 or confirmed by medical record. Subsequently, medical records were reviewed to confirm if they correspond to advanced/metastatic Non Small Cell Lung Cancer.

- The inclusion criteria were histologically or cytologically confirmed diagnosis of advanced/metastatic NSCLC, patients older than 18 years, patients who are treated at the institutions included in the study between January 2015 and December 2021, and medical records available at least 1 year before and after the index date.

- The index date is defined as the time when the patient is diagnosed with NSCLC. The data associated to demographic and clinical characteristics including biomarkers, treatments, death, and discontinuation were abstracted from electronic healthcare records. The biomarkers included were EGFR, PD-L1, ALK, BRAF, ROS1 and NTRK.

- The follow up period of each patient starts since the beginning of first line treatment and extends until death, patient loss, 5 year follow up, or end of the study. The baseline was 1 year before the index date, including it. This period was used to gather reference information for covariates.

- Electronic healthcare reports were used to identify the patients and collect data. International code diseases version 10 was used to identify patients.

- Descriptive statistics was produced for all variables. These included estimates of the mean, standard deviation, 95% confidence intervals of the mean, median, interquartile ranges and frequency distributions for continuous scale variables and frequency distributions for categorical scale variables.

- Histograms were produced for both continuous and categorical variables while boxplots will be produced for continuous variables.

RESULTS

- Five hundred eighty-nine patients met the inclusion and exclusion criteria. Mean age was 66.9 years old (Standard deviation (SD) 11.3). The female patients were 54.2%.

- The mean body mass index was 24 (SD 6.4) with active smoking at the diagnosis period of 32.1%. Approximately, 90% of patients were diagnosed with lung cancer in stage IV followed by 7.5% in IIIB and 3.5% in IIB and IIIA (Table 1).

- Histologically, adenocarcinoma was reported in 78% of patients, squamous in 12%, and other (9%). About 89.3% patients had between 1 or 2 metastases at diagnosis (Table 1).

- Arterial hypertension (61.6%), chronic obstructive pulmonary (20.5%), congestive heart failure (14.1%) were the comorbidities more frequent in the NSCLC patients.

- Brain (25.6%), respiratory system (22.0%), and bone (17.0%) were the main sites of metastasis. In patients with adenocarcinoma, the most frequent sites were nervous system (39%), bone (27%), respiratory system (16%) and liver (13%). For ALK and ROS-1 biomarkers, nervous system (41% and 48%), bone (38% and 48%) and liver (25% and 19%) sites metastatic had frequency higher that other biomarkers or conditions.

- Around 30% patients were biomarker testing being more frequent EGFR (45%) and PD-L1 (40.5%). Other biomarker with lower frequency was ALK (15%). Specifically in adenocarcinoma, PD-L1 decreases to 36.3% and the ALK increases to 16.6%.

- In first line for adenocarcinoma, chemotherapy was used in 71.1%, targeted therapy was 31.1%, and immunotherapy 16.4% without considering no data. In every line, there was many patients with no data due to changes, progression, death, and loss of follow-up. The proportion of patients with immunotherapy was growing every line while targeted therapy was decreasing (Figure 1).

- For squamous NSCLC patients, chemotherapy was first option in first line (52.8%). The number of patients significantly decrease for the other lines. Seven patients were treated with immunotherapy in second line, but only one patient used it in third line and fourth line (Figure 2).

- Chemotherapy was used in 42.8% of large cells NSCLC patients in first line. However, 26.2% of patients do not register any treatment. It was increased in the different consecutive lines. Targeted therapy was used in 21.4% of these patients (Figure 3).

- In patients with EGFR and ALK adenocarcinoma NSCLC, targeted therapy was most frequency at first line (77.8% and 83.3%, respectively). It decrease significantly in following lines specially in ALK group with increasing the use of chemotherapy (Figure 4 and 5).

Table 1. Clinical and demographic characteristics of NSCLC patients

Clinical Charateristics	Absolute frequency
Age	
Mean	66.90 (11.3)
Sex	
Female	309 (52.5)
Race	
Mestizo	320 (40.0)
White	94 (16.0)
Black	8 (1.4)
No information	165 (18.0)
Other	2 (0.3)
Body mass index	
Mean	24.00 (6.4)
Smoking status	
Yes	194 (32.1)
Initial disease stage at diagnosis	
IIB	10 (1.7)
IIIA	11 (1.9)

RESULTS (cont)

Clinical Charateristics	Absolute frequency
IIIB	44 (7.5)
IV	524 (89.0)
Site Metastasis	
Brain	257 (25.6)
Respiratory system	221 (22.0)
Bone	171 (17.0)
Hepatic	98 (9.8)
Mediastinal	56 (5.6)
Kidney	28 (2.8)
Nervous system	26 (2.6)
Adrenal glands	16 (1.6)
other locations	132 (13.14)
Number of metastatic locations	
1	336 (57.0)
2	190 (32.3)
3	50 (8.5)
≥4	13 (2.2)
ECOG functional level(metastatics)	
1	115 (19.5)
2	298 (50.6)
3	138 (23.4)
4	38 (6.5)
Charlson scores	
Mean	8.11 (2.3)
Histological	
Adenocarcinoma	462 (78%)
Squamous	72 (12%)
Large cell	43 (7%)
Other	12 (2%)

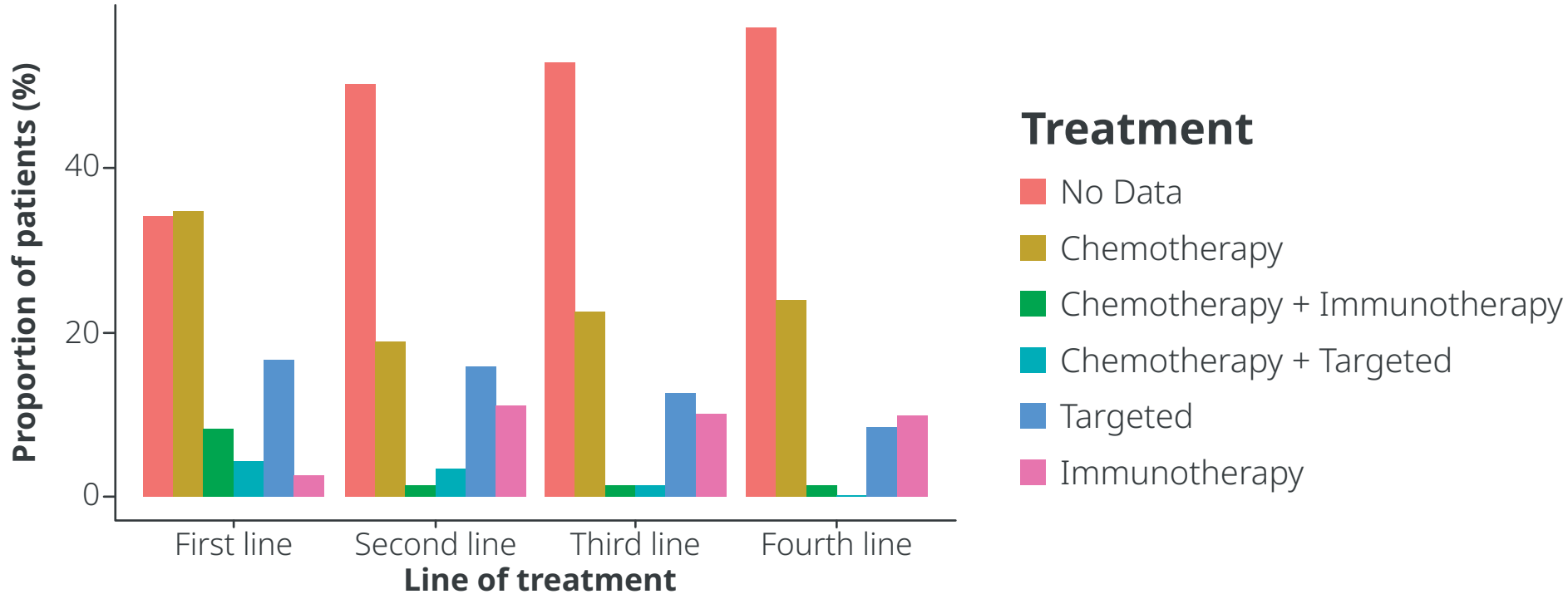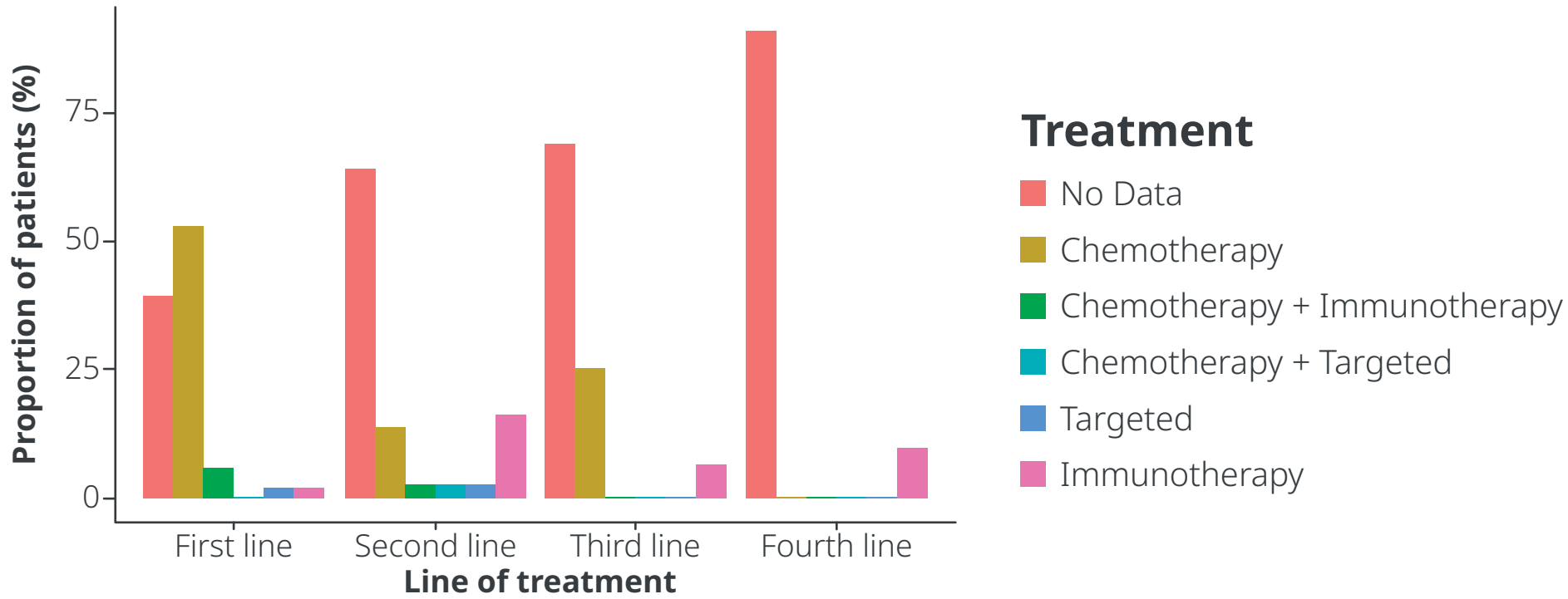**Figure 1.** Treatment patterns in patients with adenocarcinoma NSCLC

Figure 2. Treatment patterns in patients with squamous NSCLC

RESULTS (cont)

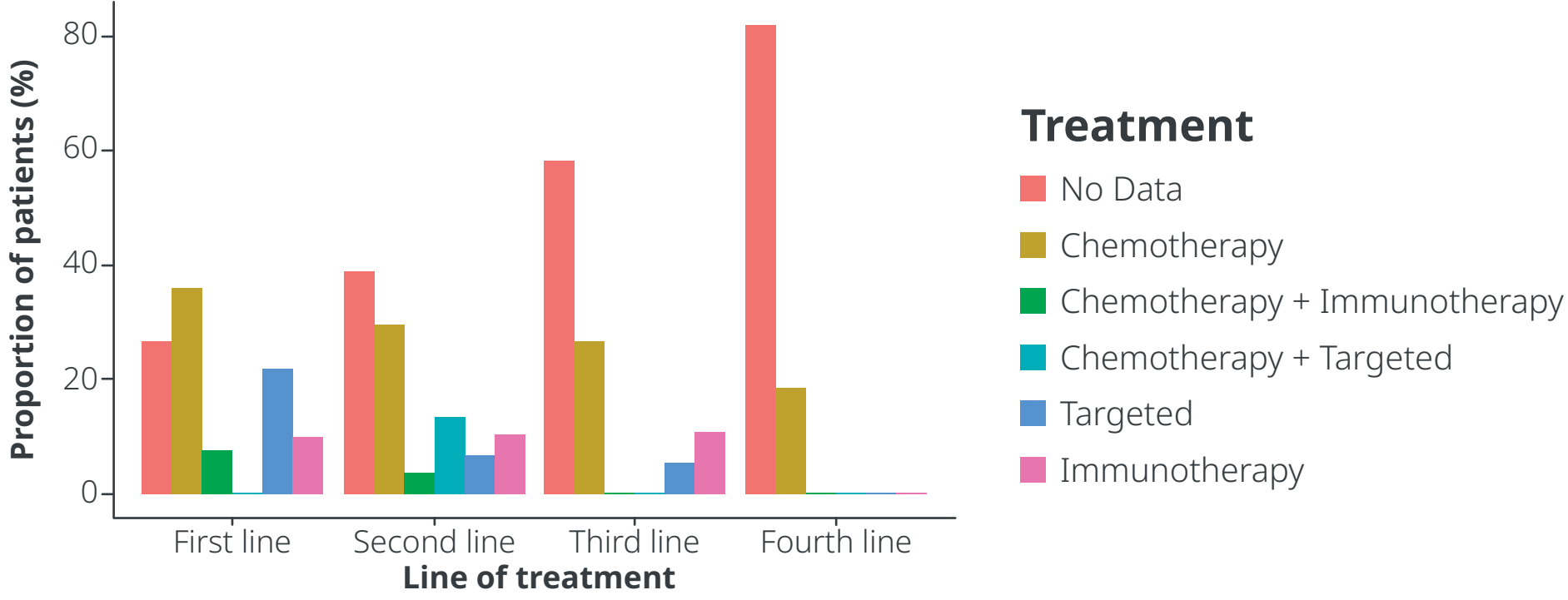**Figure 3.** Treatment patterns in patients with large cell NSCLC

Figure 4. Treatment patterns in patients with EGFR adenocarcinoma NSCLC
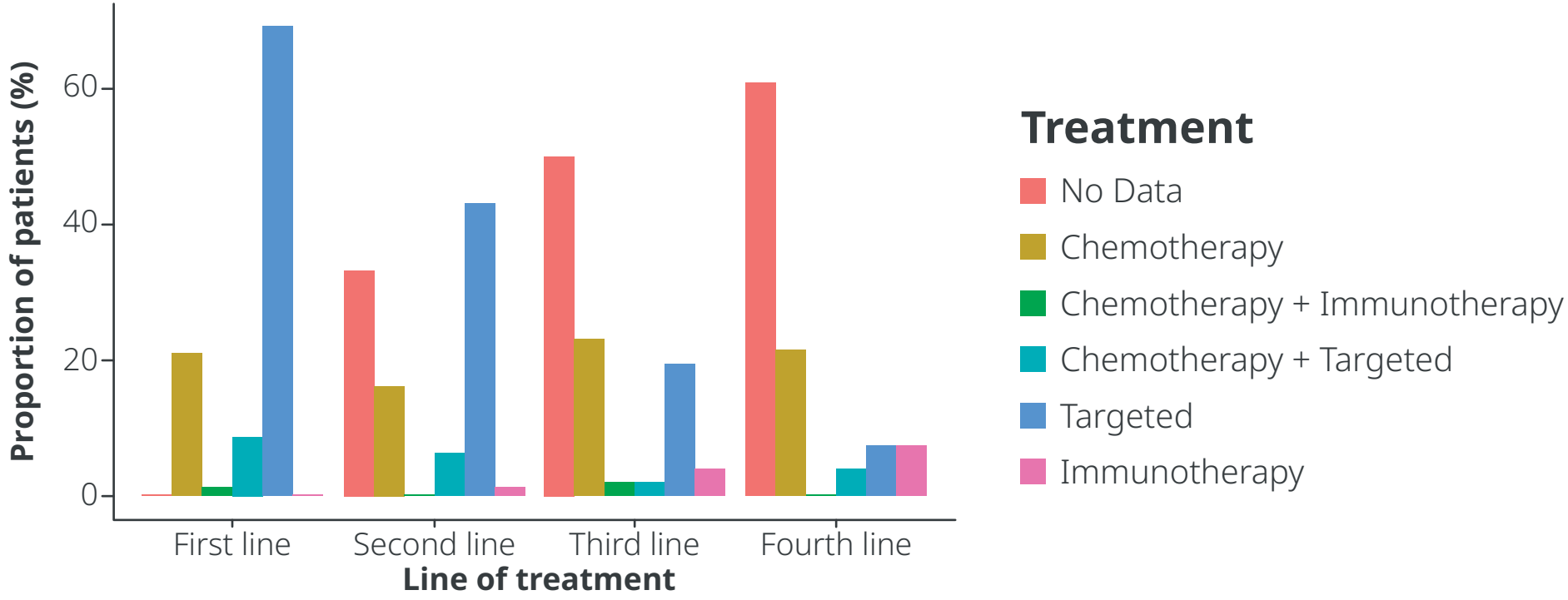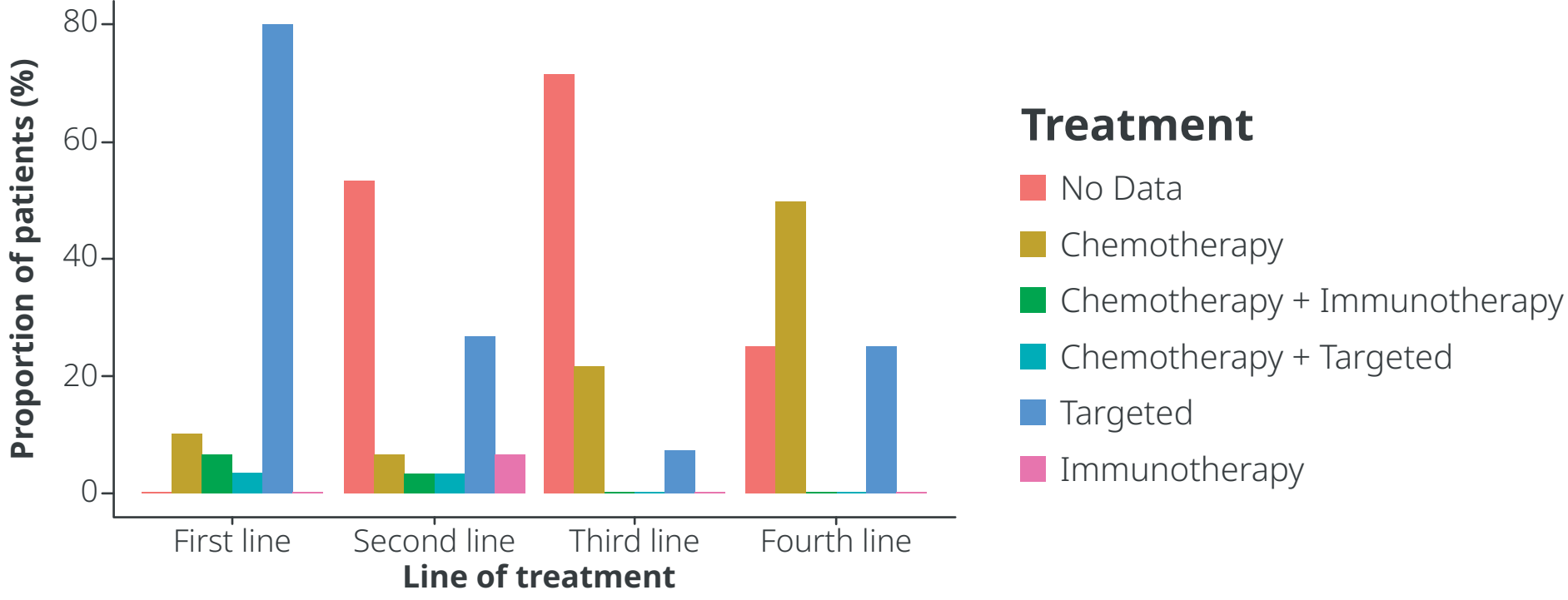

Figure 5. Treatment patterns in patients with ALK adenocarcinoma NSCLC

CONCLUSION

The first diagnosis of Metastatic NSCLC patients was in later stage of lung cancer, adenocarcinoma being the most common. Targeted therapy was the strategy most used in the first line in the treatment of ALK and EGFR adenocarcinoma NSCLC.

REFERENCE

1. Sung H, Ferlay J, Siegel RL, Laversanne M, Soerjomataram I, Jemal A, et al. Global Cancer Statistics 2020: GLOBOCAN Estimates of Incidence and Mortality Worldwide for 36 Cancers in 185 Countries. CA Cancer J Clin. 2021;71(3):209-49.
2. Ferlay J, Soerjomataram I, Dikshit R, Eser S, Mathers C, Rebelo M, et al. Cancer incidence and mortality worldwide: sources, methods and major patterns in GLOBOCAN 2012. Int J Cancer. 2015;136(5):E359-86.
3. Gettinger S, Lynch T. A decade of advances in treatment for advanced non-small cell lung cancer. Clin Chest Med. 2011;32(4):839-51.
4. Arbour KC, Riely GJ. Systemic Therapy for Locally Advanced and Metastatic Non-Small Cell Lung Cancer: A Review. JAMA. 2019;322(8):764-74.
5. Cardona AF, Mejia SA, Viola L, Chamorro DF, Rojas L, Ruiz-Patino A, et al. Lung Cancer in Colombia. J Thorac Oncol. 2022;17(8):953-60.