CHARACTERIZATION OF CLINICAL FEATURES AND TREATMENT OF NON-SMALL CELL LUNG CANCER (NSCLC) STAGE III AND IV IN BRAZIL- A RETROSPECTIVE DATA-BASE STUDY

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INTRODUCTION

Brazilian healthcare system is composed by two main actors, the public and the private one.(1) About 47 million Brazilians are served by the private system, which comprises almost 25% of the whole country population.(2)

The access rate to new oncological medicines in the private health system is higher than in the public. In some HMOs (Health Maintenance Organizations), intravenous oncological drugs become available to patients as soon they receive market authorization.

Non-small cell lung cancer (NSCLC) is still diagnosed in advanced stages and has poor survival rates in Brazil. It was estimated that about 87% of lung cancer patients were diagnosed at stages III/IV between 2000-2014 in the country.(3,4)

The availability of newer treatment options, such as tyrosine kinase inhibitors (TKI) and immunotherapy, have changed patient management in Brazil while potentially improving clinical outcomes, however, few real-world data has been published since then.(5–7)

OBJECTIVE

This study aims to evaluate NSCLC stage III/IV patients' journey in the Brazilian supplementary healthcare system.

METHODS

In order to answer the proposed objective, a population-based, retrospective cohort study using a hospital-based cancer registry database was conducted. The Cancer Hospital Registry (from Portuguese, Registro Hospitalar de Câncer – RHC) is a hospital-based cancer registry that collects, stores, processes and analyses in a systematic and continuous way, information from patients treated in hospital units, with a confirmed diagnosis of cancer.(8)

Patients who attended a private hospital between 2016-2018, under C34 ICD-10 code and diagnosed with stages III/IV NSCLC were included. Patient and clinical characteristics were assessed.

Descriptive statistics were used. Kaplan Meier method was used to determine survival curves.

RESULTS

A total of 10,440 patients were analyzed. Most patients were male (58.5%), stage IV disease (72.2%) and with a median age of 64.0 years.

Table 1 shows the characteristics of the diagnosis and treatment initiation. Diagnosis was usually established prior to first medical appointment (53.7%), that means that the patient is referred to the hospital already diagnosed. For patients diagnosis either at or after the first medical appointment, the median time elapsed for patients diagnosis was 15 days. First treatment was administered after a median of 25 and 57 days for patients without and with established diagnosis at first medical appointment, respectively. This data is consistent with previous analysis from Brazilian private healthcare system. (9) However, in the public context the estimated time between the onset of symptoms and diagnosis was around three months, and the time between diagnosis and the start of treatment around one month. (10)

Table 1: Time to diagnosis and treatment of stage III/IV NSCLC patients.

Time from first medical appointment to diagnosis (months)*	n	%
Diagnosis at the first medical appointment or after	4,766	45.7
≤ 30 days	3,473	33.3
> 30 days and ≤ 90 days	1,024	9.8
> 90 days and ≤ 180 days	206	2.0
> 180 days and ≤ 360 days	47	0.5
< 720 days	15	0.1
≥ 720 days	1	0.0
Median/IQR	15.0	6.0 – 33.0
Diagnosis prior to the first consultation	5,604	53.7
No information	70	0.7
Time from diagnosis to first treatment (months)*		
Diagnosis at the first medical appointment or after	3,847	36.8
≤ 30 days	2,229	57.9
> 30 days and ≤ 90 days	1,289	33.5
> 90 days and ≤ 180 days	270	7.0
> 180 days and ≤ 360 days	50	1.3
< 720 days	9	0.2
Median/IQR	25.0	6.0 – 49.0
Diagnosis prior to the first consultation	4,661	44.6
≤ 30 days	1,053	22.6
> 30 days and ≤ 90 days	2,289	49.1
> 90 days and ≤ 180 days	918	19.7
> 180 days and ≤ 360 days	353	7.6
< 720 days	48	1.0
Median/IQR	57.0	33.0 – 98.0
No information/Not applicable**	1,932	18.5

* Number of months was defined as the number of days divided by 30; ** Date of diagnostic unknown, date of start of treatment unknown or patient did not start treatment.

RESULTS

Information on treatment strategies is shown in Table 2. Patients were treated with chemotherapy (34.4%), followed by chemotherapy + radiotherapy (22%), and radiotherapy alone (13.4%). Furthermore, 1.1% of patients were treated with other strategies, including immunotherapy as seen in Table 2. Despite the first marketing authorization of immunotherapy for NSCLC occurred in 2017, the access to such technology, already proven to improve patients' survival, was infrequent even more than 12 months after market authorization.

RESULTS

At the end of first treatment, patients were classified based on their status, as follows: death (14%); disease progression (10%); stable disease (8.9%); partial remission (2.8%); supportive care (2.1%); complete remission (1.3%); and missing data (47%) – Table 2.

Table 2: Treatment strategies used by stage III/IV NSCLC patients.

	n	%
First therapeutic strategy received at the hospital		
Chemotherapy	3,595	34.4
Chemotherapy + radiotherapy	2,294	22.0
Radiotherapy	1,395	13.4
Adjuvant chemotherapy	462	4.4
Surgery	365	3.5
Adjuvant chemotherapy + radiotherapy	323	3.1
Adjuvant radiotherapy	109	1.0
Neoadjuvant chemotherapy	25	0.2
Neoadjuvant and adjuvant	18	0.2
Neoadjuvant chemotherapy + radiotherapy	14	0.1
Neoadjuvant radiotherapy	6	0.1
Other	116	1.1
None	1,706	16.3
No information	12	0.1
Status after first treatment		
Death	1,457	14.0
Progressing disease	1,045	10.0
Stable disease	933	8.9
Partial remission	288	2.8
Oncological therapeutic support	224	2.1
No evidence of disease (complete remission)	131	1.3
Not applicable	1,459	14.0
No information	4,903	47.0

LIMITATIONS

Limitations are related especially to the retrospective nature of the study since quality of information depends on the quality of data collection. Low rate of immunotherapy use may be related to under-reporting, however, the approval of the first immunotherapy in Brazil for lung cancer happened in 2017.

In addition, the absence of molecular information as well as the fact that the database under evaluation doesn't capture the use of oral drugs such as the TKIs, should also be considered as limitation of the study.

CONCLUSION

Despite the availability of TKIs and immunotherapy the access to such strategies is negligible. Considering the last one, just 0.7% of the patients have been treated with it.

These data highlight the need for strategies to allow access to technologies that improve NSCLC patient's survival and quality of life in Brazil.

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