CUIDADO É FUNDAMENTAL

EPIDEMIOLOGICAL PROFILE OF LUNG CANCER CASES IN THE CONTEXT OF THE COVID-19 PANDEMIC IN MOSSORÓ

Perfil epidemiológico de casos de câncer de pulmão no contexto da pandemia da covid-19 em mossoró
Perfil epidemiológico de casos de cáncer de pulmón en el contexto de la pandemia de covid-19 en Mossoró

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RESUMO

Objetivo: analisar casos de câncer de pulmão no contexto da pandemia da COVID-19 no município de Mossoró. **Método:** pesquisa realizada na Liga Mossoroense de Estudos e Combate ao Câncer. A amostra correspondeu aos pacientes com neoplasia pulmonar, em especial os diagnosticados e iniciaram o tratamento entre 2018 e 2021. **Resultados:** a idade média foi 67 anos, sendo a maioria do sexo feminino, casadas. O ano de maior incidência de diagnóstico foi 2021 e a ocupação agricultor foi a de maior prevalência, e a maioria não possuía escolaridade, eram ex-fumantes. O adenocarcinoma foi o subtipo de maior prevalência, tendo a tosse como principal sintoma. O método de tratamento predominante foi a quimioterapia junto com a radioterapia e o estágio IV foi o de maior prevalência, com presença de metástases, tendo o óbito como principal prognóstico. **Conclusão:** sugere-se outras pesquisas semelhantes em diferentes hospitais de referência para atendimento aos pacientes oncológicos.

DESCRITORES: Enfermagem; Oncologia; Câncer de pulmão; Covid-19.

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ABSTRACT

Objective: to analyze lung cancer cases in the context of the COVID-19 pandemic in the municipality of Mossoró. **Method:** research conducted at the Liga Mossoroense de Estudos e Combate ao Câncer. The sample consisted of patients with lung neoplasia, particularly those diagnosed and who began treatment between 2018 and 2021. **Results:** the average age was 67 years, with the majority being female and married. The year with the highest incidence of diagnoses was 2021, and the most prevalent occupation was farming. Most patients had no education and were former smokers. Adenocarcinoma was the most prevalent subtype, with cough being the main symptom. The predominant treatment method was chemotherapy combined with radiotherapy, and stage IV was the most prevalent, with the presence of metastases and death being the main prognosis. **Conclusion:** it is suggested that similar research be conducted in different reference hospitals for the care of cancer patients.

DESCRIPTORS: Nursing; Oncology; Lung cancer; Covid-19.

RESUMEN

Objetivo: analizar casos de cáncer de pulmón en el contexto de la pandemia de COVID-19 en el municipio de Mossoró. **Método:** investigación realizada en la Liga Mossoroense de Estudios y Combate al Cáncer. La muestra correspondió a pacientes con neoplasia pulmonar, en especial aquellos diagnosticados y que comenzaron el tratamiento entre 2018 y 2021. **Resultados:** la edad promedio fue de 67 años, siendo la mayoría mujeres casadas. El año con mayor incidencia de diagnósticos fue 2021, y la ocupación más prevalente fue la de agricultor. La mayoría de los pacientes no tenía escolaridad y eran exfumadores. El adenocarcinoma fue el subtipo más prevalente, con la tos como síntoma principal. El método de tratamiento predominante fue la quimioterapia junto con la radioterapia y el estadio IV fue el más prevalente, con presencia de metástasis y la muerte como principal pronóstico. **Conclusión:** se sugiere realizar investigaciones similares en diferentes hospitales de referencia para la atención de pacientes oncológicos.

DESCRIPTORES: Enfermería; Oncología; Cáncer de Pulmón; Covid-19.

INTRODUCTION

Cancer is defined as a term that covers more than 100 different types of malignant diseases that have in common the disordered growth of cells and can invade adjacent tissues or organs at a distance.[1] Neoplasms are serious and important problems related to public health, since they have a high prevalence and incidence in Brazil.[2]

Among the types of neoplasms that affect the population, lung cancer was considered the leading cause of cancer death in men in Brazil in 20173. For each year of the 2020-2022 triennium, INCA estimated 30,200 new occurrences of lung cancer (17,760 in men and 12,440 in women). These figures correspond to an estimated risk of 16.99 new cases per 100,000 men and 11.56 per 100,000 women.[4]

The main risk factor for this cancer is excessive tobacco consumption. This is because the number of cigarettes smoked per day, the duration of smoking and passive exposure to cigarette smoke all contribute to the development of lung cancer. But this risk factor is preventable, i.e. by reducing the number of smokers, there will be a reduction in lung cancer cases. However, there are other factors that influence the increase in the occurrence of this cancer, such as population growth and ageing, overweight, sedentary lifestyles and reproductive changes, associated with urbanization and economic development.[5, 6]

Lung cancer is divided into two groups: non-small cell lung cancer (NSCLC) and small cell lung cancer (SCLC). NSCLC is the most common among patients and the most common histological subtype in recent years has been adenocarcinoma, followed by squamous cell carcinoma.[7]

Because it is silent, most cases are diagnosed in advanced stages, as the signs and symptoms are non-specific. Persistent cough, hemoptysis, angina, shortness of breath, hoarseness and weight loss are among the main signs and symptoms seen in patients with lung cancer.[2]

One form of diagnostic accuracy is tumor-node-metastasis (TNM) staging, which assesses the extent of the disease based on the primary lung lesion (T), lymph node involvement (N) and disseminated lesions in the same organ or in other organs as metastases (M).[8]

As a result of the pandemic caused by the New Coronavirus, diagnoses and hospital admissions for lung neoplasms have decreased in an attempt to reduce the spread of COVID-19. The pandemic meant that consultations and emergency care were limited at first, which made the management of other pathologies a challenging task for doctors and patients. However, population studies assessing the impact of the pandemic on clinical oncology practice have recorded delays in the management of patients with different types of cancer, including lung cancer,

which could lead to an increase in the number of preventable cancer deaths in the near future.[9]

Thus, analyzing the epidemiological profile of the lung cancer population and their respective risk factors, prognosis and treatment outcomes is of fundamental importance in order to identify which strategies can be adopted to reduce the high incidence rates of this neoplasm and improve therapeutic options.[10] In addition, it is necessary to investigate cases of lung cancer and understand the rate of decrease in diagnosis and care for patients with this disease, in the context of the pandemic, since it is known that delays in diagnosis can contribute to the occurrence of adverse outcomes, such as rapid cancer progression and death.[11]

Therefore, the study aimed to analyze lung cancer cases in the context of the COVID-19 pandemic in the municipality of Mossoró, Rio Grande do Norte (RN).

METODOLOGY

This is a descriptive-exploratory, cross-sectional, retrospective study with a documentary procedure and a quantitative approach. The study was carried out at the Liga Mossoroense de Estudos e Combate ao Câncer (LMECC), located in the city of Mossoró-RN.

The study population consisted of patients with lung cancer, especially those who were diagnosed and started treatment between 2018 and 2021, in Mossoró/RN, to see if there was a difference in the number of diagnoses in the two years prior to the Covid-19 pandemic and in the two years during this context. At first, patients diagnosed in the year 2022 would also be included, however, the data for these individuals was not consolidated, making it impossible to collect from electronic medical records.

A priori, it was not possible to quantify how many cases were diagnosed in the services that were allocated to this study. For this reason, it was not possible to define a number of patients and calculate the precise sample, but the total corresponded to 173 medical records with reports of patients diagnosed with lung neoplasia in that period. To arrive at this number, a spreadsheet containing the list of people diagnosed with lung cancer between 2018 and 2021 was taken from the hospital's system, and those who met the inclusion criteria were included in the study. Sampling was therefore random, non-probabilistic and for convenience.

The inclusion criteria were as follows: patients diagnosed with lung cancer in the period before and during the pandemic, i.e. from 2018 to 2021, regardless of histological subtype and staging, aged over 18, of both sexes. Patients whose medical records had not been filled in, resulting in incomplete information to the point of making data collection impossible, were excluded from the study, and in these cases it was also not possible to contact them personally.

Data collection was carried out by searching medical records/reports for information, findings and clinical conditions of the sample studied. To do this, we used a questionnaire with closed questions, which was designed by the researcher herself and analyzed together with the research supervisor. The information collected was then entered into a spreadsheet containing the following topics: social characterization, epidemiological data, smoking habits, cancer diagnosis, type of cancer, histological subtype, staging, symptoms, treatment and prognosis.

The data were expressed as means and standard deviations, as well as minimums, maximums, simple frequencies and percentages using the Statistical Page For Social Sciences (SPSS) version 23.0, organized in graphs and tables. Chi-Square or Fisher's exact tests were used to assess statistical differences between the periods studied (Pandemic and Pre-pandemic) in the different variables studied. The latter was used when the expected frequency was less than 5. The significance level established was 5%.

As this study involved human beings, it was governed by the ethical principles set out in Resolutions 466/2012 and 510/2016 of the National Health Council, and the research was submitted for evaluation by the Ethics Committee of the State University of Rio Grande do Norte - CEP/UERN, and was approved under opinion number 5.497.401.

RESULTS AND DISCUSSION

The sample studied corresponded to a total of 173 electronic medical records, divided into patients diagnosed in the two years before the pandemic (2018-2019) and two years during the pandemic (2020-2021). Thus, 79 patients were diagnosed in the pre-pandemic context and 94 during the pandemic.

A priori, the age range of the participants can be defined, with a mean age of 67 years (SD ± 10.0), with a minimum and maximum value of 31 and 87, respectively. The majority were female (56.4%) and married (67.1%). As for ethnicity, the majority declared themselves white (70.8%). With regard to the year of diagnosis, the year with the highest incidence was 2021 (32.4%), followed by 2019 (24.9%). Regarding occupation, farmer was the most prevalent among those selected in the instrument (26.6%), however, the majority had occupations other than those shown (42.8%) and no level of education (43.9%). The predominant smoking status was ex-smoker (59.1%), with a lack of information on family history of cancer (72.8%).

These results corroborate other studies that have evaluated the epidemiological profile of lung cancer, since they have shown the influence of working conditions on the acquisition of this neoplasm.[12-15]

In relation to the smoking status variable, these data corroborate the thesis that tobacco is the main risk factor for the development of lung cancer, as shown in other studies.[13,15-16] The results of the study showed that the majority of the sample was female, predominating both in the pre-pandemic context and during the pandemic. These data differ from those found in the literature, since INCA figures indicate that in Brazil, for each year from 2020 to 2022, a total of 17,760 new cases of lung cancer are expected in men and 12,440 in women.[4]

As authors have shown, the increase in the diagnosis of lung cancer in women is due to the growth in women's smoking habits[7, 17-18] Moreover, although many women do not use tobacco, they smoke passively, through the smoke absorbed by other people, whether at home, on the street or at work.

With regard to the year of diagnosis, this was divided into before COVID-19 (2018 and 2019) and during the pandemic (2020 and 2021). In other words, 79 LMECC patients were diagnosed in 2018 and 2019, while 94 were diagnosed in 2020 and 2021. These data differ from studies that cite that as a result of the New Coronavirus, diagnoses and treatment of various pathologies were reduced, since the focus of health services was on managing the pandemic.[9]

However, the study in question showed that, unlike what was found in the literature, patients who were diagnosed with lung cancer in the city of Mossoró and were undergoing cancer treatment at the LMECC did not suffer as much from the impact of the reduction in lung cancer diagnoses, since the cases diagnosed in the context of the pandemic were higher than those diagnosed before the pandemic. However, it is believed that because the study site is a reference for various regions of RN and due to the pandemic, other people could have suffered from the difficulty of traveling to Mossoró and getting evaluated, reducing diagnoses in other cities.

With regard to clinical data, the results showed that the majority of patients were diagnosed with Non-Small Cell Cancer (52.7%), but that 32.7% did not have this classification, due to the lack of this information in the medical records. In addition, the most common histological subtype was adenocarcinoma (77.6%) and the most prevalent symptom was cough (33.7%).

This was to be expected, since the literature shows that NSCLC has been the most prevalent in recent years. Reinforcing this finding, as other studies have shown, non-small cell tumors affect around 75 to 80% of all lung cancer diagnoses and have a slower growth and dissemination pattern, while small cell cancers affect around 20% of these individuals.[19]

Furthermore, other studies have shown that adenocarcinoma was the most frequent histological subtype in lung cancer patients, both in the earliest and most advanced stages.[20] In addition, the study carried out by showed that adenocarcinoma is linked to patients developing metastases, especially bone metastases.[21] The study showed that the predominant type of treatment was chemotherapy together with radiotherapy (41.2%); however, data collection showed that some patients did not undergo any treatment, as this information was not included in the medical records.

Other studies show that although there are different treatment modalities for this neoplasm, surgery, radiotherapy, chemotherapy and target therapy stand out.[15, 22-23] When the disease is localized, i.e. does not affect lymph nodes in the mediastinum, treatment consists of surgery and/or chemotherapy, whether or not accompanied by radiotherapy. If the disease affects the lung and lymph nodes, treatment requires chemotherapy and radiotherapy. In patients whose disease has spread to other organs, treatment consists of chemotherapy, and in some cases target therapy.[24]

The study in question showed that computed tomography remained the main method for diagnosing lung cancer in the two periods studied (pandemic and pre-pandemic). This result corroborates data from other studies on the subject, since its use in patients at risk of lung cancer or with suggestive early symptoms is of great value.[15, 18, 24]

Furthermore, although CT scans are the main method for diagnosing lung cancer, other studies have shown that biopsies are also used to diagnose the histological subtype and help direct treatment.[5,9]

As the study showed, there was no statistical difference between the age group of patients before and during the pandemic, as the numbers remained similar (p-value = 0.950). However, people over the age of 70 predominated in the pre-pandemic period. Regarding family history of cancer, the study showed that the number of cases of cancer patients in the family who were diagnosed during the pandemic was lower (20.2%) than in the pre-pandemic context (35.4%).

Regarding smoking status, the study showed that there was no statistical difference between the pre-pandemic and pandemic periods, but it was observed that during the pandemic the number of smokers increased (39.3%) and consequently the number of non-smokers decreased (6.6%). Furthermore, in the pre-pandemic context, the number of ex-smokers was higher (63.4%). The graph below shows a breakdown of this data.

Graph 1 - Distribution (%) of the occurrence of smokers according to the pandemic (n= 61) and pre-pandemic (n=71) periods (x2=3.298; gl=2; p-value =0.192). Mossoró, RN, Brazil, 2022.
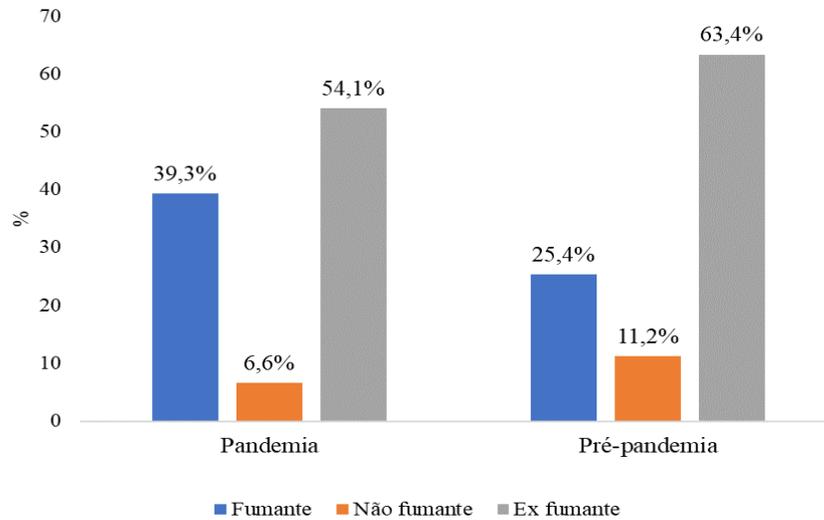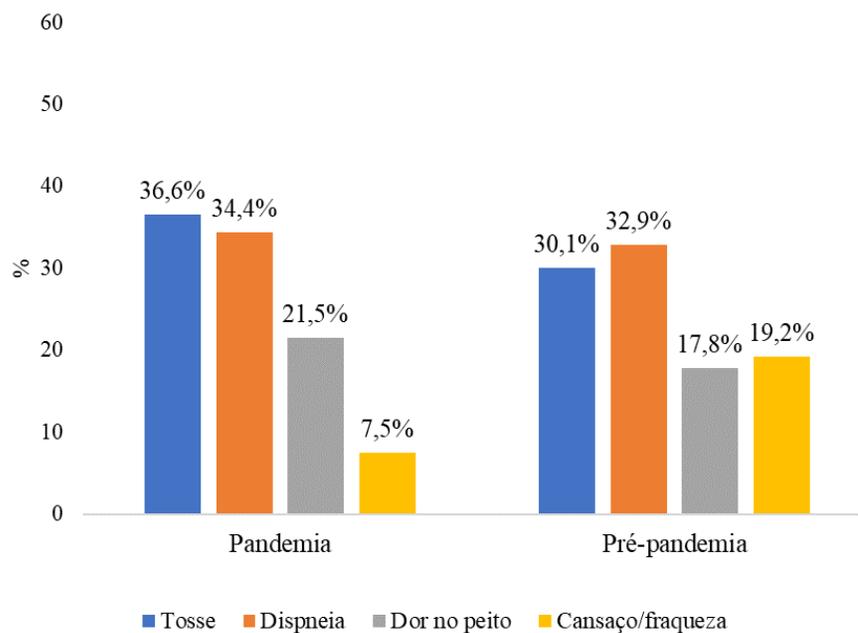

Source: prepared by the authors (2023)

Regarding the symptoms of lung cancer patients, the study showed that there was no statistical difference between the pre-pandemic and pandemic periods, but an increase in symptoms was observed during the pandemic, such as cough (36.6%), dyspnea (34.4%) and chest pain (21.5%). However, it was observed that tiredness/weakness decreased during the pandemic period (7.5%) when compared to the pre-pandemic period. It is clear that the total sample fluctuated due to the number of responses, since some variables lacked information. The graph below shows this distribution.

Graph 2 - Distribution (%) of the occurrence of symptoms according to the pandemic (n= 93) and pre-pandemic (n=73) periods (x2=5.198;gl=3; p-value = 0.158)**.**

Source: prepared by the authors (2023)

The study showed, albeit without statistical significance, that non-small cell lung cancer increased during the pandemic (83.3%) and adenocarcinoma remained prevalent both before and during the pandemic; however, there was an increase in squamous cell carcinoma during the pandemic (23.3%).

With regard to treatment, although not statistically significant, it was observed that during the pandemic, chemotherapy was the most prevalent method (38.3%), while chemotherapy and radiotherapy predominated in the pre-pandemic context (41.8%). The right side of the lung was the site most affected by cancer during the pandemic (56.8%), however, before the pandemic, the right and left sides had the same number of cases (42%).

As for staging, although it was not statistically significant, stage IV remained predominant both before and during the pandemic and metastases also remained at similar percentages, only decreasing in some places during the pandemic period. With regard to prognosis, the number of patients undergoing treatment increased during the pandemic (41.9%) when compared to the pre-pandemic context. However, death remained prevalent in both periods, with a higher prevalence in the pre-pandemic (54.4%). In the diagnosis variable, there was statistical significance (p-value =0.018) and computed tomography remained the main method of diagnosing lung cancer in the two periods studied, however, in the pandemic it was higher than before the pandemic (97.9%).

Based on the statistical analysis of the clinical findings, it can be seen that the study makes important contributions to health professionals, since it allows them to delve deeper into the clinical characteristics of the population with lung cancer, allowing them to delve deeper into the conditions of morbidity and mortality in this group.

FINAL CONSIDERATIONS

The main aim of this study was to outline the epidemiological profile of patients diagnosed with lung cancer before the Covid-19 pandemic and in the pandemic context, to identify whether there was a difference in the number of diagnoses and the characteristics of these individuals in the two periods. In this sense, the study showed that the majority of patients were women, with an average age of 67, married and self-declared white.

In relation to the other variables, it was identified that although the Covid-19 pandemic has interfered in the diagnosis of various diseases, patients with lung cancer who underwent treatment in Mossoró/RN were not greatly influenced by the decrease in these diagnoses, since during the pandemic there were more patients diagnosed with lung cancer when compared to the context before the pandemic. In addition, these individuals had the most prevalent profession

of farmers and the level of education, mostly absent or incomplete elementary school and with a history of smoking for many years, as expected, the results showed that the majority of individuals with lung cancer are diagnosed with NSCLC, with adenocarcinoma as the most prevalent cancer, with characteristic signs and symptoms.

The research proved what the literature already showed: patients with lung cancer, depending on the time of diagnosis and staging, have minimal chances of cure, since the disease is most often discovered at an advanced level, when the individual has characteristic signs and symptoms, such as cough, dyspnea, chest pain and others. In this sense, cancer progresses quickly and silently, causing the patient not to have a good prognosis, progressing to death in more than 50% of cases.

This highlights the importance of screening for the prevention and early diagnosis of lung cancer, especially in smokers and passive smokers, with the aim of reducing the number of cases of this neoplasm and increasing survival. In addition, the results of this study corroborated what is shown in the literature, in most variables, however, in relation to Covid-19, these data differed. This is because, contrary to what other studies have shown, that the pandemic has led to a decrease in lung cancer diagnoses, the patients who received treatment at LMECC did not suffer to a large extent from this problem, as the number of individuals diagnosed with lung cancer during the pandemic was higher than before the pandemic.

When associating lung cancer with the Covid-19 pandemic, we noted the difficulty of studies focused on this subject, relating the influence of the New Coronavirus on diagnoses of the neoplasm. However, despite these limitations, this study achieved its objectives and it provides an opportunity to suggest similar research in other referral hospitals for lung cancer patients, allowing for a broad knowledge of the evolution of the disease and its risk factors.

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