ORIGINAL RESEARCH PAPER

Oncology

# DESCRIPTIVE ANALYSIS OF LATERALITY IN LUNG CANCER AND SMOKING IN QUITO-ECUADOR

**KEY WORDS:** Lung, cancer, smoke, Ecuador, Quito

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**ABSTRACT**

**Introduction:** In Ecuador, lung cancer ranks eighth in men and ninth in women according to the National Tumor Registry, however, it has little research in our country.
The objective of this research is to describe a relationship between the location of lung cancer and laterality.
**Methods:** 37 histopathological samples were analyzed during the years 2012-2016 using descriptive analysis of frequency as well as crossing of variables.
**Results:** Of the 37 patients, 7.3% correspond to non-smokers, 3.1% to smokers in the past and 4.2% current smokers, the rest corresponds to ignorance of this practice.
Regarding location in non-smoking patients, it is located in the upper lobe in 57%, while smokers in the past have a greater predisposition to be located in the lower lobe in 17% with an OR = 2.25 95% CI (0 , 61-8.18); p = 0.15, while current smokers are more likely to develop a tumor in the left lung over the right and there is no laterality relationship between smokers in the past and non-smokers.
**Conclusion:** The distribution of lung cancer in our research is similar to that demonstrated in international studies in which right lung cancer occurs more frequently than the left one, as well as the upper lobe above the lower one, having to recommend that we should start prospective studies and evaluate survival according to laterality.

## INTRODUCTION

Survival of non-small cell lung cancer in Ecuador remains poor, having an 11-month survival with treatment (1), with a low incidence in this country ranking eighth in men and ninth in women according to the Hospital Registry (2).

Little has been studied regarding the laterality of lung cancer McWilliam et al, indicates that tumors on the right side show lower overall survival than tumors on the left side 15 versus 18 months (3).

Roychoudhuri et al reported autopsy data in lung cancer with strongly-matched left-right organ size ratios 0.87 in the lungs and testicles concluding both in lungs and testicles, the asymmetries in the incidence of cancer closely matched the asymmetries in the size of the organs (4).

The objective of the present investigation is to describe in a descriptive way a relationship between the location of lung cancer and laterality in patients treated in an oncological institution of Quito-Ecuador.

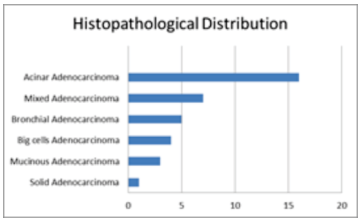
## METHODS

37 histopathological samples of patients treated during the years 2012-2016 of the registry of institutional electronic medical records were analyzed, which were divided into: smokers, smokers in the past, non-smokers and strangers, using descriptive analysis of frequency as well as crossing of variables, for the statistical analysis, the IBM-SPSS program was used in the fourteenth edition.

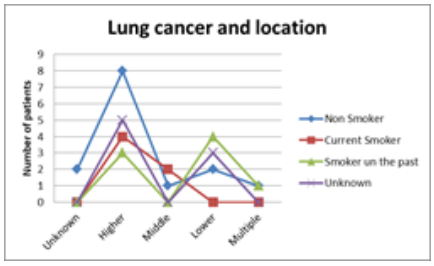
## RESULTS

37 samples were analyzed of which, 7.3% correspond to non-smokers, 3.1% to smokers in the past and 4.2% current smokers, the rest corresponds to ignorance of this practice, with a report of histopathological distribution that we will

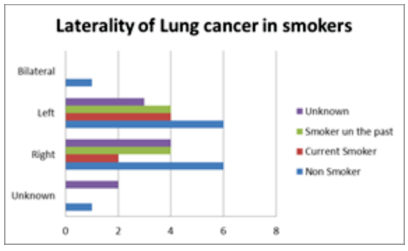
represent in Figure 1.



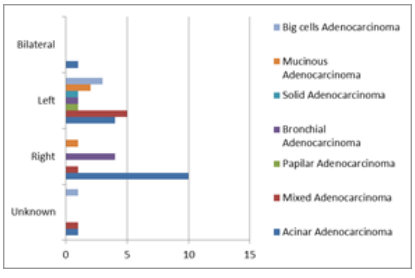

When talking about the location of lung cancer in non-smoking patients there is a greater tendency to its distribution in the upper lobe by 57%, while smokers in the past have a greater predisposition to be located in the lower lobe by 17% with a OR = 2.25 IC 95% (0.61-8.18); p = 0.15 as shown in Figure 2.




We have determined the laterality of lung cancer according to the condition of cigarette smoking, those current smokers are more likely to develop a tumor in the left lung over the right, while there is no laterality relationship between smokers in the past and non-smokers as shown in Figure 3.




Finally, laterality of lung cancer was analyzed according to histological type for which acinar adenocarcinoma has a greater predisposition in the right lung, while mixed and large cell adenocarcinoma have a greater predisposition in the left lung, for non-smokers OR = 1.47 IC 95% (0.80-2.71); p = 0.21 as shown in Figure 4.




## DISCUSSION

According to Alhamdi, the distribution of non-small cell lung cancer was represented in a distribution of: 32.37% for the upper lobe, 4.35% for the middle lobe and 19.81% for the lower lobe, instead of 58.45% for the right side and 31.88% for the left, the remaining percentage corresponds to a description of unspecified tumor. (5)

Nicolai Jorgensen describes in his study the presence of 164 tumors in the right lung and 118 tumors in the left lung with longer survival time for those patients who presented with a left tumor but with a p = .729 (6)

Bo Jia in his study of survival in terms of laterality in lung cancer describes 53496 tumors in the right lung and 36911 in the left lung without differences in survival in terms of laterality but if more predisposition to be located in the right lung. (7)

Yujin Kudo describes in his study a presence of 14.7% in the left lower lobe, and in the right lower lobe 21.7%, right middle lobe 7.1%, right upper lobe 34.8% and left upper lobe21.9%. (8)

In conclusion we can say that the distribution of lung cancer in our research is similar to that demonstrated in international studies in which right lung cancer occurs more frequently than the left one, as well as the upper lobe above the lower one, having to recommend that we should start prospective studies and evaluate survival according to laterality to have our own data.

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