Comparison Of Lung Cancer In Human Immunodeficiency Virus (HIV) Positive And Negative Patients

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Citation

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Abstract

Lung cancer is currently the leading cause of cancer deaths. The risk of malignancy is increased in HIV infected patients. The goal of the study was to compare lung cancer in HIV positive and negative patients.

Methods: Retrospective chart review of all patients with lung cancer.

Results: One-hundred and eight patients, 16 HIV positive and 92 HIV negative, were identified. HIV infected patients presented at a younger age, had more advance disease at the time of diagnosis and had a predominance of small cell subtype than HIV negative patients. Upper lobe disease was a feature in the HIV negative group but not in HIV positive.

Conclusions: Malignancy should be a strong consideration in the immune-competent smoker with upper lung disease. Lung cancer in HIV positive patient should be recognized as a diagnostic possibility even in patients who are younger than those with typical lung cancer. Radiological presentation can be atypical and easily confused with an infectious process.

INTRODUCTION

Lung cancer is currently the leading cause of cancer deaths in both men and women in the United States. At the end of the 20th century, lung cancer had become one of the world's leading causes of preventable death. The histologic characteristics of lung cancer in a number of developed countries, including the United States, also have changed in recent decades so that the frequency of adenocarcinoma has risen and that of squamous cell carcinoma has declined ([1]).

Thirty-one percent of cancer deaths in men are attributable to lung cancer. Lung cancer causes more deaths than the next three most common cancers combined (colon, breast and prostate cancer) ([2]). HIV-infected individuals have an increased risk of malignancy, especially non-Hodgkin's lymphoma and Kaposi's sarcoma. Recently, several studies have noted a raised prevalence of lung cancer in HIV positive subjects. ([2], [3], [4])

The goals of our study were to compare primary lung cancer in HIV positive and HIV negative patients and evaluate differences in histologic as well as radiological features.

METHODS

This was a retrospective review of the medical records, pathology reports and chest roentgenogram (CXR) of all the patients with documented lung cancer. Patients were identified by the tumor board and the pulmonary division database.

The study period was from January 1994 to December 1997 at Bronx Lebanon Hospital Center. Data regarding demographics, HIV status, stage and type of cancer was obtained.

RESULTS

One-hundred and eight patients were identified, 16 (9%) were HIV positive. Among the other 92 patients, 80 were HIV negative and 12 had no HIV test available and no risk factor for HIV disease. The majority of patients in both groups were males. Patients in the HIV positive group were younger than the HIV negative/unknown group, Table 1. Majority of patients in both groups (80%) were smokers. There was no history of occupational exposure.

Figure 1

Table 1: Demographics

	HIV Positive n= 16	HIV Negative/Unknown n= 92
Age yr/old (Median)	48.6	62.82
Gender Male/Female M/F Ratio	10/ 6 1.6:1	58/32 1.8:1

In both groups malignancy was more common in males.

A review of the cell types revealed that adenocarcinoma and squamous cell cancer were the most common cell subtype found followed by small cell in both groups Table 2-. Comparison between the two groups revealed a trend for HIV positive patients to present with small cell cancer of the lung compared with non HIV patients, 31 % versus 18%. Adenocarcinoma and squamous cell subtypes were more common in HIV negative patients. Other malignancies found in HIV positive patients were lymphoma and Kaposi sarcoma.

Regarding radiological presentation, 52% of the patients had upper lung involvement; there was no difference between HIV positive and negative patients. There was a trend for HIV positive patients to present with lower lobe or central involvement compared with non HIV patients.

We did not find any correlation between the cell type and disease location on chest roentgenogram in our study.

Irrespective of the HIV status, majority of the patients in our study presented with advance disease, more than 70% had stage IIIB or higher.

Figure 2

Table 2: Characteristics of the Patients with Lung Cancer

	HIV Positive No %	HIV Negative/Unknown No %
Cell Type		
Adenocarcinoma	3 (19%)	27 (29%)
Squamous	3 (19%)	27 (29%)
Small Cell	5 (31%)	17 (18%)
Undifferentiated	0	12 (13%)
Others	5 (31%)	9 (10 %)
TOTAL	16	92
Chest X-Ray		
Upper Lobe	6 (37%)	50 (54%)
Lower Lobe	4 (25%)	14 (16%)
Central	3 (19%)	9 (10%)
Bilateral disease or Effusion	3 (19%)	19 (20%)
Staging		
Stage I	0	1 (1.8%)
Stage II	1 (6%)	7 (7.6%)
Stage III A	3 (19%)	7 (7.6%)
Stage III B	7 (44%)	13 (14%)
Stage IV	5 (31%)	53 (57%)
Unknown	0	11 (12%)

DISCUSSION

In our study, patients with lung cancer and positive HIV status presented at a younger age than non HIV patients and had a higher incidence of small cell subtype. In HIV positive patients there was a more homogeneous distribution of radiological presentation compared with non-HIV patients where there was upper lobes predominance. This could be due to the higher number of small cell cancer in our HIV population. Recent studies give conflicting results regarding histological subtypes in HIV infected patients. Lavale et al ([2]) reported a predominance of adenocarcinoma in their series of HIV patients compared with Spano et al ([5]) were the most commonly seen subtype was squamous cell carcinoma (11/22 cases) with only one patient having small-cell lung carcinoma. These studies support our data that HIV positive patients present at a younger age and with more advanced disease compared with non HIV patients.

In our study, lung cancer involving the upper lobes was more commonly seen in the non HIV than in the HIV positive group (54% versus 37%). Other studies ([6], [7]) did not reveal any differences in radiologic presentation for HIV positive or negative patients; they all had upper lobe predominance. The most common histologic subtype in those studies was adenocarcinoma. Small cell lung cancer has been reported to be in excess in workers who have been

exposed to chloromethyl ethers and in underground miners who have been exposed to radon progeny, none of our patients reported any occupational exposure, so in unclear why the differences in cell type found in our study compared with others.

CLINICAL IMPLICATIONS

Based in our study, histology seems to be a changing feature in HIV infected patients with lung carcinoma, with small cell cancer being the most frequently found lung cancer in our study. A larger study could help to clarify the role of genetic as well as the molecular effect of HIV infection in the histologic presentation of lung carcinoma.

It is of the outmost importance for clinicians caring for HIV infected patients to be aware of the different presentations. Malignancy should be a strong consideration in the immune-competent smoker with upper lung disease. Lung cancer in HIV positive patients should be recognized as a diagnostic possibility even in patients who are younger than those with typical lung cancer. In addition the radiological presentation can be atypical and easily confused with an infectious process.

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