Original Article

Challenges of Lung Cancer Management in a Developing Country

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ABSTRACT

BACKGROUND: The investigation of pulmonary neoplasm in Nigeria is hampered by lack of investigative tools and religio-cultural beliefs that detest autopsy. However, recent publications seem to suggest an increasing incidence of this lesion in Nigeria.

MATERIALS AND METHODS: A 30-month prospective study of all cases of lung cancer seen at a tertiary health institution in Nigeria was done to document the incidence and challenges of management in the region.

RESULTS: Fifty one new cases of primary carcinoma of the lung were identified during the study period. The age ranged from 30- 81 years, mean 56.6±21.6 years and male:female ratio of 2.4:1. The age-standardized incidence rate was 7.9 per 100,000 with a peak in the 60-69 year age group. In 42% of the males there was cigarette smoking history. Adenocarcinoma of the lung was the predominant histologic subtype, and treatment was largely palliative.

CONCLUSION

The incidence of lung cancer in South East Nigeria is on the increase even in the absence of state-of-the-art diagnostic modalities. The high prevalence of cigarette smoking amongst the males is a call for the intensification of the preventive measures against tobacco use.

KEY WORDS: lung cancer; malignant pleural effusion; bronchoscopy; pleurodesis

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INTRODUCTION

The investigation of primary pulmonary neoplasm in Nigeria is hampered by lack of investigative tools, underdiagnosis, misdiagnosis, poverty, and religio-cultural beliefs that detest autopsy. All these made earlier investigators of this malignancy to express the view that carcinoma of the lung was rare among Nigerians[1-3]. Even later reviews from the mid-western and north-eastern part of the nation seemed to collaborate this[4,5]. Some other reviews, however, have documented an increasing incidence of this condition[6-10]. Whether this is a true increase or rather that of improvement in diagnosis is difficult to say.

In a recent study of pleural effusion in South-eastern Nigeria, an increasing incidence of malignant pleural effusion (MPF) of lung origin was noted[11]. This raises the need to re-examine carcinoma of the lung in this part of the nation.

MATERIALS AND METHODS

The South-eastern geopolitical region of Nigeria comprises the five Igbo-speaking states of Abia, Anambra, Ebonyi, Enugu, and Imo. The population of these states is 16,381,729; accounting for 11.7% of the Nigerian population[12].

The University of Nigeria Teaching Hospital (UNTH), Enugu is the major tertiary health-care institution serving these five south-eastern states. Naturally all cases of suspected lung cancer from the region are referred to the centre.

PATIENTS

A 30-month prospective study of carcinoma of the lung was carried out between January 2003 and June 2005 at the UNTH, Enugu. All index cases were evaluated as part of their diagnostic work up and tissue diagnoses obtained using one or more of the modalities of sputum cytology, pleural aspirate cytology, pleural biopsies, gland biopsies, bronchoscopic biopsies, exploratory thoracotomy, and histology of resected specimens.

The information obtained in each case was entered in a preformed structured proforma. Categoric variables were summarized as frequencies and percentages. Continuous variables were summarized as means ± standard deviations. Results were presented in tabular form and age-specific incidence rates calculated.

RESULTS

Fifty one new cases of primary carcinoma of the lung were identified during the study period; a hospital incidence of 20.4 per year (Table I). The age ranged from 30 - 81 years with a mean of 56.6±21.6 years and male:female ratio of 2.4:1. The triad of dry cough, dyspnoea, and chest pain was the major presentation. In more than one half, the presentation was with malignant pleural effusion(MPF). Tissue diagnoses were obtained by a combination of pleural fluid cytology and biopsy in the majority of cases and adenocarcinoma was the predominant histologic subtype. History of smoking was present in 42% of the males. There was no history of smoking amongst the females. Treatment was palliative in the majority of cases. The age-standardized incidence rate for the region was 7.9 per 100,000 with a peak in the 60 -69 year age grouping, Table II.

DISCUSSION

Across West Africa the age-standardized incidence rate

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Table I: Patient characteristics

Demographics	n = 51
Age (mean, range)	56.6(30-81)
Sex	
Male	36(70.6%)
Female	15(29.4%)
Diagnostic modality	
Exploratory thoracotomy	6(12%)
Pleural cytology/biopsies	29(56%)
Gland biopsies	5(10%)
Bronchoscopy	7(14%)
Chest wall biopsies	4(8%)
Histologic subtypes	
Adenocarcinoma	16(31%)
Squamous cell	10(20%)
Small cell	5(10%)
Anaplastic cell	5(10%)
Large cell	1(2%)
Unclassified	14(27%)
Stage grouping	
IIIA	5(10%)
IIIB	36(70%)
IV	10(20%)
Treatment modality	
Resection(pneumonectomy)	1(2%)
Pleurodeses	28(55%)
Chemotherapy	4(8%)
Exploratory thoracotomy	6(12%)
Watchful waiting	12(23%)

Table II: Number of new lung cancer cases and incidence rates by age group

Age group (years)	Population	Number of cases	Percentage	Crude rate	Age-specific rate
0-9	3,989,754	_	_	_	_
10-19	3,933,639	_	_	_	_
20-29	3,062,544	_	_	_	_
30-39	1,959,688	2		0.01	0.1
40-49	1,490,757	9		0.05	0.6
50-59	917,472	20		0.12	2.2
60-69	551,777	13		0.07	2.4
70-79	291,753	6		0.03	2.1
80+	197,171	1		0.01	0.5
Total	16,394,555	51		0.29	7.9(ASR*)

ASR* (Age standardised incidence rate)

for lung cancer remains low but there is a steady rise[13-16]. In Nigeria although hospital-based studies show a rise in incidence, the ASR for lung cancer from this study shows only a marginal increase from the ASR of published studies from other countries in West Africa. This incidence is far below the results from Southern Africa[17,18]. The greatest challenge in cancer study in West Africa, as pointed out by Bah,et al[14], has been that of poor documentation and difficulties in obtaining tissue diagnoses. In the case of lung cancer the resurgence of pulmonary tuberculosis further complicates the issue. This was the case in four of the patients presenting with pleural effusion and completing 6 9 months course of tuberculosis treatment before referral and whose investigations confirmed malignancy. As earlier pointed out, in the majority of cases the diagnoses of pulmonary tuberculosis are made solely on clinical suspicion[11]. Unlike the study from Gambia, where only 13% of cases of lung cancer had tissue diagnoses, we believe the ASR in this study would have been higher if our study had included all cases of suspected lung cancer without tissue diagnoses.

The 42% prevalence of smoking among males with carcinoma of the lung in this study is higher than the national prevalence of less than 25%[19,20]. It is to be noted that amongst the females there is no case of smoking. The reason for this may be cultural as the Igbo society frowns at women who smoke and considers it a sign of irresponsibility.

In this study the clinical features and presentation of lung cancer have remained unchanged with majority of the cases presenting with advanced disease. Although adenocarcinoma was the predominant histologic subtype in this study, it must be interpreted in the light of the number of unclassified histologic positive cases. The inability to adequately type this group is yet another challenge in the management of the disease in the region. As most of the patient presented with advanced disease, treatment was mainly palliative. Chemical pleurodesis was the main palliative modality due to the high percentage of MPF. The technique employed was usually by slurry. Treatment was also hampered by poverty as very few patients could afford the cost of chemotherapeutic agents and radiotherapy was not available at the time the study was conducted.

CONCLUSIONS

The incidence of lung cancer in South East Nigeria is on the increase even in the absence of state-of-the-art diagnostic modalities. The true incidence is certainly higher if all cases of misdiagnoses/undiagnosed are carefully investigated. The prevalence rate of cigarette smoking among the males, which is twice the national rate, is a call for the intensification of the preventive measures against tobacco use. Treatment has largely remained palliative due to advanced stage of the lesion at presentation. It is hoped that with increasing awareness, some cases will be detected early and as such may be amenable to resection. This will necessarily involve an improvement in the diagnostic modality.

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