Lung Cancer in Nepal – Histological Typing And Its Relations With Smoking

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Abstract

Out of 51 bronchoscopy biopsy, thirty (60%) were of lung cancer which made 5.3% of the whole malignant tumours, i.e. 562 cancers in different sites in 26 months study in the Department of Pathology, TUTH. Squamous cell carcinoma (22 cases or 73.3%) was the commonest followed by Oat cell carcinoma (5 cases or 16.7%). Lung cancer was found more frequently in the old age group, that is 23 cases (77%) in over 50 yrs old, 6 cases (20%) in 40-50 yrs age group and only one case (3%) in 25 yrs male. The average age for the lung cancer in this study is 58.2 yrs. Lung cancer is more common in male than female (5:1). All nine patients with broncogenic carcinoma in whom the history of smoking habit was taken, were heavy smoker for a long time (more than 15 yrs) & 89 (8 out of 9 pts) have Squamous cell carcinoma. In 17 cases of lung cancers 12 (70%) were found in right lung and 5 (30%) in the left lung.

Introduction

Lung cancer is one of the commonest pulmonary disease in the developed countries. This disease is a fatal disorder and is constantly increasing in number. The constant increase in its frequency is not only due to improved and more accurate methods of

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diagnosis, but also absolute and real increase in prevalence, with the changed occupation and environments. With the establishment of diagnostic facilities e. g. Fibreoptic Bronchoscopy in the hospitals, the incidence of lung cancer has been increased in Nepal. Pulmonary Tuberculosis is common in Nepal. In the past, some of the patients suffering from fatal pulmonary disorders with no response against the antituberculous treatment could have been the case of lung cancer. And as in many countries the absolute increase of this disease might be true in Nepal also. I have tried to find out the incidence of lung cancer in the Fibreoptic bronchoscopic specimens in TUTH, Nepal and their histological typing. Though exact etiology of lung cancer is not known, cigarette smoking is supposed to be important associated factor, so I have tried to correlate heavy smoking with the incidence and histological typing of the lung cancer.

Materials & Methods

51 Bronchial specimens of clinically suspected lung cancer patients from 1,3,043 to 32,4,045 were studied. The specimens were received mainly from OPD & Indoor patients of TUTH. The biopsy materials were immediately put in the formalin solution and sent to the Dept. of Pathology, TUTH. As the bronchial biopsy specimens were very small in size, the whole tissues were processed and the sections stained in routine H & E PAS, then were examined under the light microscope. The findings for the histological typing are grouped according to the WHO classification of the lung cancer (1981). Sex and age-wise studies were done in all positive cases. Nine patients with Bronchogenic carcinoma were also asked about their smoking habit.

Result

Number of Bronchial biopsy	~	51
Number of lung cancer	~	30 (60%)
Number of malignant tumour in all sites	--	562
Percentage of lung cancer among the malignant tumour	~	5.3%
M : F : : 5 : 1		
Site of the lesion :		
Cancer in Lt. Lung	~	5
Cancer in Rt. Lung	~	12
Age group :		
Over 50 yrs	--	23 (77%)
40-50 years	~	6 (20%)
Less than 40 yrs	--	1 (3%)
Average age for Lung cancer	~	58.2 years.

TABLE I

S. No.	Case No.	Pt's Name	Age/Sex	Smoking habit	R/L lung	Histological type
1.	S-273/043	NJ	25/M	NR	NR	OCC
2.	S-520/043	CP	44/M	"	R	OCC
3.	S-917/043	KMS	75/M	"	R	SCC
4.	S-978/043	BPA	05/M	"	NR	AC
5.	S-997/043	RNT	51/M	"	NR	SCC
6.	S-1087/043	BBKC	75/M	"	L	LCC
7.	S-1464/043	NBR	64/M	"	NR	OCC
8.	S-177/044	JP	55/M	S	"	SCC
9.	S-1350/044	DBK	72/M	NR	"	"
10.	S-1401/ "	MRU	50/M	"	"	"
11.	S-1422/ "	CK	55/F	"	"	"
12.	S-1484/ "	LN	59/M	"	"	"
13.	S-1608/ "	JP	70/M	"	"	"
14.	S-1980/ "	SS	50/M	"	L	OCC
15.	S-1981/ "	CKT	50/M	"	R	LCC
16.	S-2049/ "	CK	55/M	"	"	SCC
17.	S-2085/ "	JP	67/M	"	"	"
18.	S-2089/ "	MK	65/M	"	L	"
19.	S-2103/ "	KB	62/M	"	NR	"
20.	S-2151/ "	PS	65/M	"	L	"
21.	S-1153/ "	MK	64/M	S	R	OCC
22.	S-2779/ "	CG	71/M	NR	"	SCC
23.	S-3277/ "	DKK	40/M	S	"	"
24.	S-3293/ "	MK	60/M	NR	L	"
25.	S-3338/ "	TBG	65/M	S	R	"
26.	S-299/045	DPG	60/M	"	"	"
27.	S-368/ "	KT	55/M	"	"	"
28.	S-403/ "	CD	52/F	"	"	" (Spindle)
29.	S-170/ "	SG	60/F	"	NR	"
30.	S-	MPR	62/M	"	"	"

Abbreviations used in the table

L	-	Left lung
R	-	Right lung
S	-	Smoker
SCC	-	Squamous cell carcinoma
OCC	-	Oat cell carcinoma
LCC	-	Large cell carcinoma
AC	-	Adenocarcinoma
NR	-	Not recorded

TABLE - II

Total number of lung cancer	-	30.
Histological type	Number	Percentage
1. Squamous cell carcinoma	22	73.3%
2. Oat cell carcinoma	5	16.7%
3. Large cell carcinoma	2	6.7%
4. Adenocarcinoma	1	3.3%

TABLE - III

Smoking habit in the patients with lung cancer		
Total number of patients investigated	-	9
Smoking habit found in the heavy smoker patients	-	9 i. e. 100%
Histological types of lung cancer in smoker	Number	Percentage
1. Squamous cell carcinoma	8	89%
2. Oat cell carcinoma	1	11%
3. Large cell carcinoma	0	0%
4. Adenocarcinoma	0	0%

Only nine patients with lung cancer were investigated for their smoking habit for a long time before it was diagnosed and all nine patients were heavy smokers. Eight of them had Squamous cell carcinoma and one had Oat cell carcinoma. Eight patients were 50 yrs or more than 50 yrs of age while one patient was 40 yrs old. And seven patients were male and 2 patients were female.

12 patients had lung cancer in Rt. lung and 5 patients in the left lung.

Discussion

The incidence of lung cancer is increasing in the developed countries. In 1921 in England and Wales there were 1240 deaths from lung cancer among men and 481 among women, in 1973 the corresponding figure were 26,032 and 5,144 (10). Lung cancer is one of the commonest cancer in many developed countries. With gradual resolution of other serious problems such as acute communicable diseases, TB, maternity and child health, population control in many Asian countries, the problems of cancer has become of similar

importance as in other developed European and American countries. Lung cancer ranks second after stomach cancer in Shanghai (2). The number of lung cancer diagnosed by histological investigations has increased in Nepal. This is because of the establishment of diagnostic facilities such as Fibreoptic bronchoscopy and awareness of patients and doctors. The increase in the number may be an absolute one. The lung cancer in this study was 5.3% of all cancers detected from 1,3,043 to 32,4,045 (26 mths.) in the Dept. of Pathology, TUTH. According to one earlier study of cancer in Nepal, lung cancer was diagnosed in 13 out of 1449 malignant tumours (3), which is just 0.9% and in another study 3.6% (9). The Bronchogenic carcinoma is more common in old males. Although patients suffering from lung cancer are usually males in 5th and 6th decades of life, persons under 40 yrs of age are not uncommonly affected (1). The age specific incidence for lung cancer in Asia is not essentially different from other countries in the world (5). The incidence of lung cancer in Singapore males is higher than in other Asian countries and is roughly same as in the Europe and North-America (8). The lung cancer in USSR has become the most frequent type of tumour in the male (11). In this study also, 97% of patients with lung cancer case were above 40 yrs of age at the time of diagnosis and only 3% is the patients of 25 yrs old. The average age was found to be 58.2 yrs. The male and female ratio is 5 : 1.

Current rapid expansion of medical technology has produced improvement in diagnostic testing such as Fibreoptic instruments for endoscopic examination, Angiography, Ultrasonography, and CAT scan. What the recent advances have done really is to improve dramatically the oncologist's ability to obtain tissue for examination and to identify small potentially cancerous lesions in previously inaccessible sites in the body. However it is true that the final and definite diagnosis of cancer is based on careful histological examination of tissue by a competent pathologist. The histopathologist plays a major role in the diagnosis and management of lung cancer. The suspected diagnosis of a malignant tumour must be confirmed histologically and the further management of a case depends on two items of information ; the histological cell type and extent of tumour spread (6).

Cancer can arise in any part of the lung and its prognosis and progress is to some extent related to its site of origin. There is some general correlation between the site of origin and histological type of a bronchial tumour. Squamous cell carcinoma are the commonest in the hilar region and Adenocarcinoma in the peripheral zones. The histological type of lung cancers in this study is found to be 73.3% (22 out of 30 cases) Squamous cell carcinoma, followed by Oat cell carcinoma with 16.7% (5 in 30 cases), Large cell carcinoma 6.7% (2 in 30 cases) and Adenocarcinoma 3.3% (1 in 30 cases). The reason for this might be because only bronchoscopy biopsy specimens were studied.

There is an important and direct relationship between smoking and lung cancer in both males and females but it is more conspicuous in case of male. It is estimated that the population attributable risk (PAR) of smoking in Shanghai for lung cancer is 80.5% for

male and 19.3% for female (2). The incidence of lung cancer has usually been greater among cigarette smoker than pipe and cigar. One prospective investigation on smoking and lung cancer has been carried out in U. K. in 1951. In 1956 the death of 1714 male doctors aged 35 or over was recorded. Mortality from bronchial cancer is closely correlated with cigarette smoking less so with smoking pipes and cigar. The annual death rate from lung cancer ranged from 0.07 per thousand in the non-smokers to 2.76 per thousand in heavy cigarette smokers (10).

The relative risks of lung cancer among cigarette smokers compared to non-smokers was 4.3 for Adenocarcinoma and 31.0 for other cancers (4). The bronchial carcinomas that are found in smokers are mostly Squamous cell carcinoma, Oat cell carcinoma, Undifferentiated carcinomas, whereas Adenocarcinoma is not related to heavy smoking (1). Lung cancer risks depend far more strongly on duration than on daily-dose rate of cigarette smoking (7). In this study of 30 lung cancers, I could take history of smoking habit in nine patients and all nine were heavy smokers for a long time (more than 15 yrs.). Eight out of nine have squamous cell carcinoma, whereas one has oat cell carcinoma. Much evidence points to the greater influence of environmental rather than hereditary factors in the etiology of lung cancer. In man, the consequence of cigarette smoking is more obvious than the familial factor and the opposite trend apparently obtains in women. In addition to environmental causes like cigarette smoking, genetic factors may play a role in the etiology of lung cancer.

Conclusion

The number of lung cancer in recent years is diagnosed more frequently in Nepal. The incidence of lung cancer is more in male, aged people with smoking habit for a long time. Squamous cell carcinoma is the commonest type of lung cancer in Nepal and closely correlated to smoking habit. In most developing countries, tobacco consumption was relatively low in the past, it has been increasing in recent years. There are many obstacles and constraints to control smoking in the developing countries, but smoking control is badly needed to prevent lung cancer.

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Squamous cell carcinoma of lung

Oat cell carcinoma of lung