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Clinico-pathological profile of diagnosed patients of lung cancer with its relation to smoking habit and educational status in a medical college of paschim medinipore west Bengal, india- A Tribal area prospective

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ABSTRACT

Background: Lung cancer is one of the commonest and most lethal cancer throughout the world. Tobacco smoking continues to be the leading cause of lung cancer worldwide. An increase incidence of lung cancer has been observed in India.**Objective:** The aim of this study was to find out the demographic and clinico-pathological profile of diagnosed lung cancer patients and its relation to smoking habit and educational status in tribal area of paschim Medinipore West Bengal, India. **Materials and Methods:** We performed a retrospective analysis of histopathologically proven cases of lung cancer admitted in our hospital from June 2011 to June 2014. **Results:** Out of 160 patients, male 140 and female 20, 88.75% were smoker and only 15% are ≤40 years of age. Smoking is the major risk factor for lung cancer .The most frequent symptom was cough (73.75%) followed by chest pain (58.75%). The most common radiological presentation was mass lesion (66.25%).Squamous cell carcinoma was most common histopathological type followed by adenocarcinoma (51% & 31%). Poor people of tribal area who are less educated were mostly the victim of the disease. **Conclusion:** It was found that squamous cell carcinoma was the most frequent histopathological type. Adenocarcinoma was predominates type below 40 years and squamous cell carcinoma was more common in age group above 40 years. Smokings still remain the major risk factor. Most of cancer patients were less educated and were not aware about ill effect of smoking.

Keywords: Lung cancer, histopathological type, smoking, education.

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Introduction

The relative frequency and clinicopathological profile of different histological subtypes of primary lung cancer have been changing in recent years .It may probably due to changes in the smoking habit, growing popularity of low-tar/filter cigarettes and exposure to other occupational and environmental agents[1-8].

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According to the first population-based cancer registry (PBCR) from eastern part of India published in 2002, the highest number of lung cancer cases among male has been documented from west Bengal compared to other regions of India. It is the most common site of cancer in male (16.3%) and the fifth leading site in female (3.9%) in west Bengal[9].

In this study, we have documented our experience of lung cancer in a tertiary medical college of west Bengal in tribal area and compared it with reports of other part of India and abroad. We also try to evaluate the relationship of lung cancer with smoking habit and educational status in tribal area West Bengal.

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Materials and methods

This retrospective study was evaluated using database with 160 patients of lung cancer who had diagnosed at our hospital. The clinical records of the patients reviewed in relation with age, sex, duration of symptoms, smoking habit, educational status, knowledge about ill effect of smoking, radiographic finding, method of diagnosis, histopathology. Major diagnosis was based on either imaging guided percutaneous fine needle aspiration cytology or fibre optic bronchoscopy. Test of significance was done by Chi-square test. The Ethical committee of the institute has approved the study.

Results

The study included 160 patients and there was an overall male predominance with male/female ratio of 7:1(160 male and 20 female). 70 % (14/20) of female and only 5.71% (8/140) of male were diagnosed at age less than 40 years. Incidence of lung cancer was significantly higher in young female as compared to young male where as in old age group ,male were more suffered than female (p=<.0001). Of the total 160 patients, 88.75% (142/160) were smoker and 35% of them were smoked more than 40 pack years (Table-1).

Table-1: Demographic profile of cases included in the study (n =160)

Age Group	No. of patients	Percentage
<40 yrs	24	15%
41-60 yrs	58	36.25%
>60yrs	78	48.75%
Gender		
Male	140	87.5%
Female	20	12.5%
Total	160	
Smoking status		
Smoker	142	88.75
Non smoker	18	11.25
Total	160	
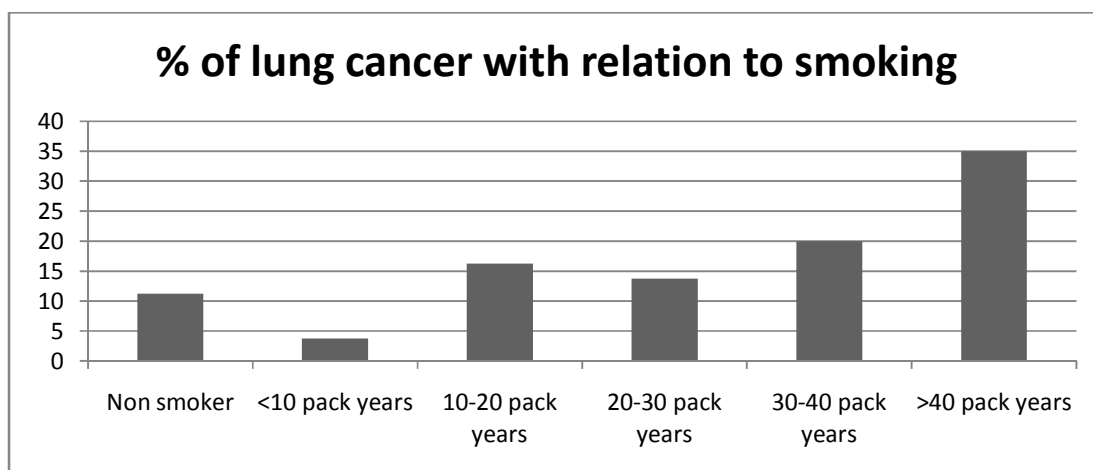
Diagram 1: % of Lung cancer with relation to smoking

Cough was the most common symptom found in (73.75%) followed by chest pain (58.75%), haemoptysis (26.25%) and weight loss (26.25%) (Table-2). Mass lesion (66.25%) was the commonest radiological feature followed collapse (25%) (Table-3). The various diagnosis modalities, either single or in combination, used for confirmation of lung cancer are shown in Pie diagram-1

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Table 2: Clinical manifestation (n=160)

Symptoms	No. of patients	Percentage (%)
Cough	118	73.75
Chest pain	94	58.75
Haemoptysis	42	26.25
Fever	30	18.75
Hoarseness of voice	26	16.25
S.V.C. Syndrome	12	7.5
Loss of weight	42	26.25

Table: 3- Radiological presentation (n=160)

Site	No. of patients	Percentage (%)
Bilateral	06	3.75
Right lung	84	52.5
Left lung	70	43.75
Mass	106	66.25
Collapse	40	25
Combination	14	8.75

Diagnostic yeild of different procedure
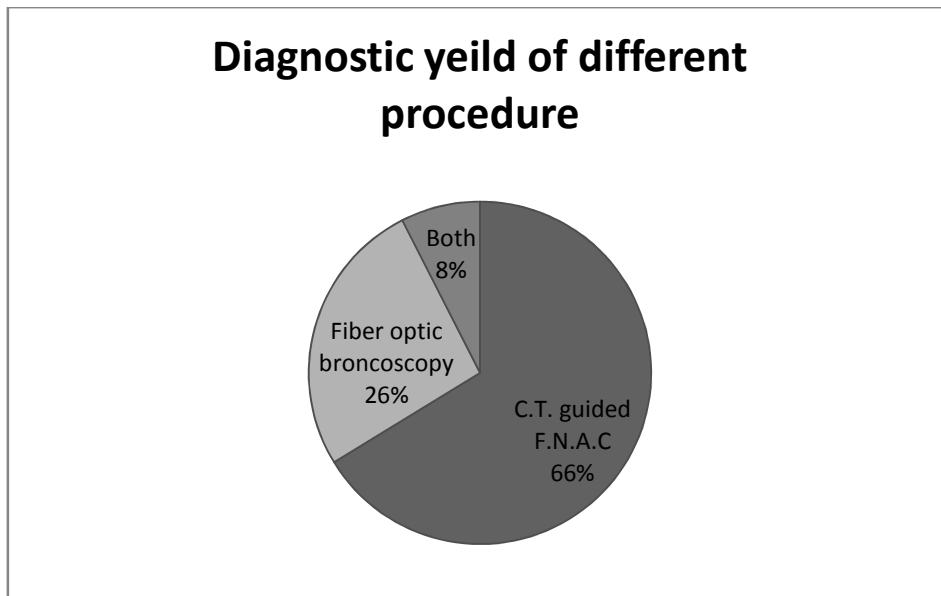
The most common histopathological sub types in our study were squamous cell carcinoma (51.25%) an adenocarcinoma (31.25%) followed by small cell carcinoma (11.25%), undifferentiated carcinoma (3.75%) and large cell carcinoma (2.5%) (Pie diagam-2). Squamous cell carcinoma were more common among smoker, older age group and adeno carcinoma were more common in non smoker and younger female patients.

Pie diagram-2: showing histological type of lung carcinoma (n=160)

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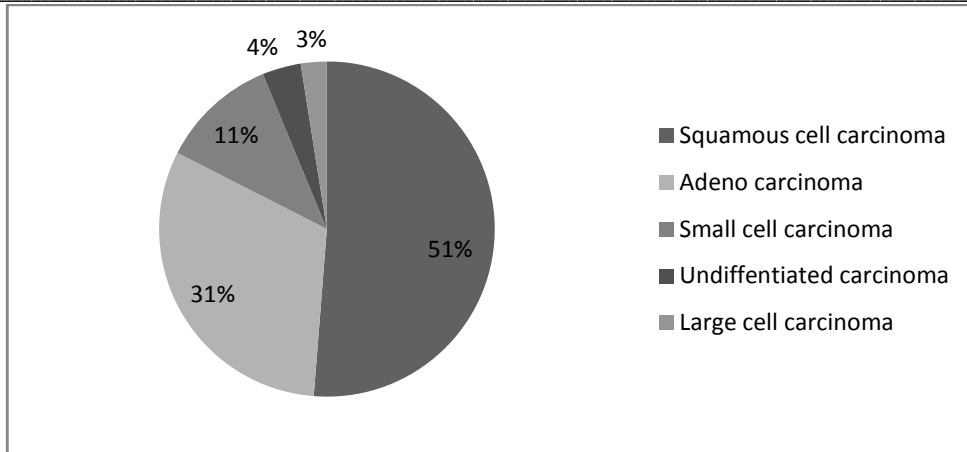
Comparing educational status with knowledge about ill effect smoking, we found that people who are illiterate or literate upto primary level did not know ill effect of smoking (p= <.0001) in tribal area like paschim medinipore.(Bar diagram-2). Even among educated patients up to secondary and higher secondary level 52.7 %(38/72), were not aware of ill effect of smoking.
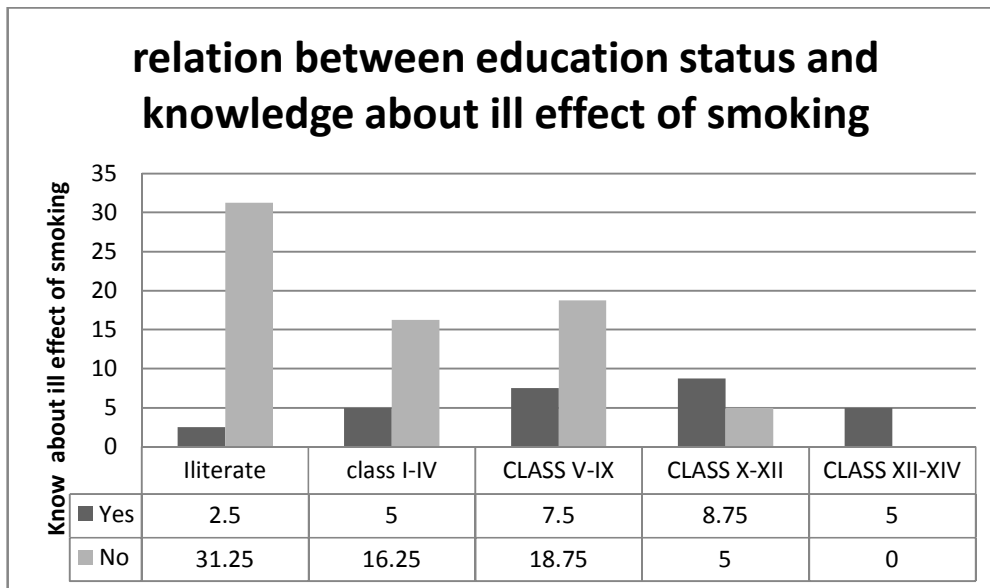

Diagram 2: Relation between education status and knowledge about ill effect of smoking

Discussion

Our hospital is located in a district of west Bengal but we got majority of our patients from near tribal villages. The distribution of histological subtype, age related difference and gender association in our study are compared with other previous studies in India and abroad (Table-4, 5). Male: Female ratio was 7:1 in our study. The ratio is significantly higher in older population ,age more than 40 years compare to young patients ,age less than 40 years(1:1.4 Vs 21:1) .In our study ,female patients were younger than male which is similar to most of previous reports [6,10,11]. There is a also predominance of female among young population

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(58.33%), which is similar to other studies. Smoking was the most predisposing factor which include cigarette, beedies etc. Similar observation has been reported by other Indian studies also [1, 12, 13, 14]. The smoking habit is significantly less among young population (33.5% Vs 98.5%). This emphasizes the presence of some confounding factors other than smoking in young population. Fu *et al*. have suggested the possibility of

gender specific increased susceptibility to lung cancer in female 15. Santos-Martinez concluded that male sex and smoking are associated with squamous cell carcinoma and female sex is associated with adeno carcinoma16. There was predominance of adeno carcinoma in young female and squamous cell carcinoma in older male patients in our study which is similar to various studies outside India [17-20].

Table 5: Comparison of our study with other study from India and abroad

Author	Location, year	Total patients	Young (%)	M:F		Smoking		Leading HPE in Young (%)	Leading HPE in Old (%)
				Young	Old	Young (%)	Old (%)		
Green , [19]	Latin America, 1993	81	48	1:1	2.7:1	45.8	78.8	AC 54	AC 42 SCC 36
Bhattachaya[10]	Kolkata, 1996	297	26(8.7)	4.2:1	14.2:1	57.6	79.8	SSC	SCC
Kreuzer[20]	Germany 1996	2260	251(11.1)	2.7:1	5.6:1	97(M) 91(F)	99(M) 68(F)	AC 84	SCC 42 AC 47
Gadgeel[21]	US 1999	1012	126(12.5)	1.9:1	1.4:1	92.1	94.2	AC 48	AC 36 SCC 31
Prasad [23]	India,2009	799	73(9.1)	4.2:1	6.3:1	73	81	SCC 32.8	SCC 48.7
Jagdish	India,2009	203	20(9.8)					SCLC	SCC
Dey,	India,2010	607	57(9.4)	2.17:1	4.5:1	45.6	69.4	AC 25	SCC 36
Our study	India,2014	160	24(15%)	1:1.4	21:1	33.3	98.5	AC 58	SCC 54

SCC-Squamous cell carcinoma, AC- Adenocarcinoma, SCLC-Small cell lung carcinoma, LCC- Large cell carcinoma, Undiff.- Undifferntiated carcinoma.

Table 6: Comparison study of lung cancer from Eastern India

	BhattacharyaK *et al*,1996		Dey A *et al*,2010		Our study,2014	
	Young N = 26	Old N = 271	Young N= 57	Old N=550	Young N=24	Old N=136
Female	5(19.23%)	18(6.6%)	18(31.57%)	100(18.18%)	14(58.33%)	6 (4.44%)
Male: Female	4.2:1	14:1	2.17:1	4.5:1	1:1.4	21:1
Smoking history	15(57.6%)	215(79.3%)	26(45.6%)	382(69.4)	8(33.3%)	134(98.5%)
HPE						
SCC	13(50%)	145(53.9%)	13(22.8%)	200(36.4%)	9(37.5%)	73(53.67%)
AC	5(19.23%)	22(8.1%)	14(24.6%)	173(31.5%)	14(58.3%)	36(26.4%)
SCLC	3(11.5%)	20(7.3%)	10(17.5%)	90(16.4)	01(4.16%)	17(12.5%)
LCC	0	0	6(10.5%)	30(5.5%)	0	4(2.9%)
Undiff.	0	0	14(24.6%)	57(10.4%)	0	6(4.4%)

Bhattacharya *et al*, 1996 [22],   Dey *et al*, 2010[23]

(SCC-Squamous cell carcinoma, AC- Adenocarcinoma, SCLC-Small cell lung carcinoma, LCC- Large cell carcinoma, Undiff.- Undifferntiated carcinoma)

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The pattern of lung cancer has been changing in the west. Lung cancer is being increasingly diagnosed in women and adeno carcinoma has over taken squamous cell carcinoma as the most common histological cell type among all groups. But squamous cell carcinoma still commonest type in all patients in our study which is similar to reports from other part of India [12,13,21] .The differences in histo-pathology may be due to the fact that smoking is less prevalent among women in India compare to west.

C.T. guided F.N.A.C. and Fiber optic bronchoscopy (F.O.B) both are useful tool for diagnosis of lung cancer [24,25]. In our study, yield from C.T. guided F.N.A.C was more than F.O.B. It may be due to that mass lesion was more common radiological finding than other.

The patient who was Illiterate or education up to primary level did not know about ill effect of smoking which indicated that the awareness programme in tribal village need more attention.

Conclusion

This study has shown smoking as the principle risk factor in causation of lung cancer but data from tribal area shows lack of knowledge about ill effect of smoking. There are many awareness programs running throughout India but results from tribal area is not satisfactory. So proper implementation of these programs should be done to educate people to quit smoking and thereby decreasing the incidence of lung cancer near future.

Acknowledgment

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