International Journal of Research Publication and Reviews

Journal homepage: www.ijrpr.com ISSN 2582-7421

Knowledge, Attitude and Practices of Lung Cancer in Medical Students

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ABSTRACT

BACKGROUND:

Lung cancer is one of the deadliest cancers worldwide. In total, 25% of deaths in cancer cases are caused by lung cancer.Lung cancer has been ranked first in the world among other cancers with the highest incidence rate.The major risk factor of lung cancer is 80% from cigarettes, both as active smokers and passive smokers.

METHOD:

This paper aims to give knowledge,attitude and practices of Lung cancer risk factors in Medical Students .A survey was conducted through a google form link shared on social media.It was conducted from 13th April to 20th April 2022. A cross sectional study was conducted by questionnaire method and medical students were included.total 83 students participated. Out of 83 participants 55 were female and 28 were male. This cross sectional study focussed on evaluating lung cancer awareness among medical students with mean age of 22+/-3 years in India using questionnaires based on Indian cancer society, American cancer society and indian cancer registry data.

CONCLUSION:

This segment of population consisting of medical students is crucial as they play a significant role in shaping public health policies and practices.The study revealed that awareness of lung cancer was suboptimal.Despite being exposed to healthcare information and education ,the perceived seriousness of disease and personal susceptibility were relatively low in 2nd and 3rd year medical students. This lack of awareness may hinder early detection,prevention and timely intervention efforts towards lung cancer.By addressing these gaps early , India can make significant strides in reducing the burden of lung cancer in the coming decades and improving public health outcomes.

KEY WORDS: Chemotherapy; deadliest cancer; lung cancer; medical students; Smoking.

INTRODUCTION:

Lung cancer is the 2nd most common cancer worldwide. It is the most common cancer in men and the 2nd most common cancer in women.There were more than 2.2 million new cases of lung cancer in 2020[1]. Lung cancer is the leading cause of cancer deaths among men and women in the United States.[2]. Lung cancer remained the leading cause of cancer death, with an estimated 1.8 million deaths (18%), followed by colorectal (9.4%), liver (8.3%), stomach (7.7%), and female breast (6.9%) cancers[3].Lung cancer has been ranked first in the world among other cancers with the highest incidence rate.The lung cancer five year survival rate (18.6%) is lower than many other leading cancer such as colorectal(64.5%),breast(89.6%) and prostate(98.2%).The five year survival rate for lung cancer is 56 percent for cases detected when disease is localized.However, only 16 percent of lung cancer cases are diagnosed at an early stage.More than half of people with lung cancer die within 1 year of being diagnosed[4].The major risk factor of lung cancer is 80% from cigarette, both as active smokers and passive smokers. Smokers have a risk of getting lung cancer 20–40 times greater than those who do not smoke.[5] Male smokers have 70% higher prevalence of lung cancer than nonsmokers. Same thing happens with passive smokers accidentally inhaling cigarette smoke which contains 69 types of carcinogens, including the most abundant substances, such as polycyclic aromatic hydrocarbons, arsenic, benzene, and nitrosamines. Alternative tobacco products like e-cigarettes and smokeless tobacco contain harmful chemicals and toxins that have health risks.The chemicals and toxins may cause serious health problems like lung cancer[6].Other risk factors of lung cancer include air pollution, unhealthy food, chemicals, jobs with risk of getting carcinogen exposure, family history of cancer, lack of physical activity, alcohol (>30g/day), and a history of pulmonary disease .[7,8] Some researches reported that consumption of high fat, exposure of intense smoke, and frying fumes can increase the risk of lung cancer.[9] Urban community has a higher risk of getting lung cancer than rural community. This is related to high levels of air pollution and

unhealthy lifestyle.[10].Lung cancer is often diagnosed at a late stage when curative options are limited and survival rates are poor.[11] One factor contributing to late presentation may be poor awareness of lung cancer symptoms or risk factors. Recent research has explored awareness of symptoms and risk factors more generally but a more in-depth investigation of lung cancer specifically is warranted.Cough, dyspnoea, haemoptysis and chest discomfort are potentially associated with a primary lung tumour.[12-16]Therefore, providing information about lung cancer risk factors to improve knowledge, attitudes, and actions to prevent lung cancer is necessary.

AIMS & OBJECTIVES:

This paper aims to give knowledge,attitude and practices of Lung cancer risk factors in Medical Students .The objective is to understand perception of lung cancer seriousness and susceptibility among medical students .

1.1. Risk Factor:

- Modifiable risk factor:

  Tobacco smoke[17]

  Smoking is by far the leading risk factor for lung cancer. About 80% of lung cancer deaths are thought to result from smoking and this number is probably even higher for small cell lung cancer (SCLC). It's very rare for someone who has never smoked to have SCLC. The risk of lung cancer for people who smoke is many times higher than for people who don't smoke. The longer you smoke and the more packs a day you smoke, the greater your risk.Cigar smoking and pipe smoking are almost as likely to cause lung cancer as cigarette smoking. Smoking low-tar or "light" cigarettes increases lung cancer risk as much as regular cigarettes. Smoking menthol cigarettes might increase the risk even more since the menthol may allow people to inhale more deeply.Secondhand smoke: If you don't smoke, breathing in the smoke of others (called secondhand smoke or environmental tobacco smoke) can increase your risk of developing lung cancer.Exposure to radon,asbestos,beta carotene supplements and arsenic in drinking water can increase risk.

- Non modifiable risk factors:

  1.Previous radiation therapy to the lungs.

  2.Personal or family history of lung cancer.

1.2. Signs and Symptoms of Lung Cancer [18]:

1. A new cough that is persistent or worsens, or a change in an existing chronic cough
2. Cough that produces blood
3. Pain in the chest, back or shoulders that worsens during coughing, laughing or deep breathing
4. Shortness of breath
5. Unexplained weight loss
6. Fatigue
7. Loss of appetite
8. Lung infections such as bronchitis or pneumonia that won't go away
9. Hoarseness or wheezing
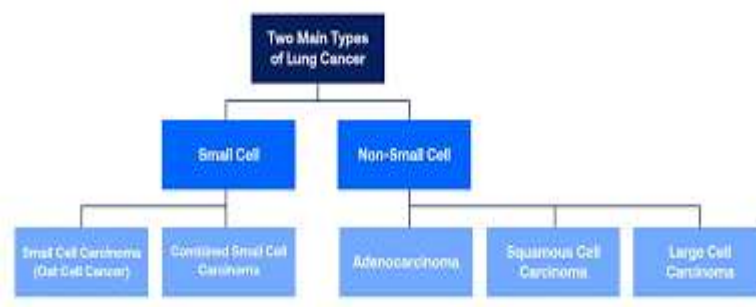
1.3. Type Of Lung Cancer :

Figure 1: types of lung cancer

1.4. Diagnosis :[19]

1)Chest x-ray

2)Computed tomography (CT) scan: A CT scan is more likely to show lung tumors than routine chest x-rays. It can also show the size, shape, and position of any lung tumors and can help find enlarged lymph nodes that might contain cancer that has spread. CT-guided needle biopsy: If a suspected area of cancer is deep within your body, a CT scan might be used to guide a biopsy needle into this area to get a tissue sample to check for cancer.

3)MagneticResonanceImaging(MRI)scan

4)Positron Emission tomography scan

5)Bone scan

6)Sputum cytology

7)Thoracentesis

8)Needle biopsy:Fine needle aspiration (FNA) biopsy,core biopsy,transthoracic needle biopsy.

9)Bronchoscopy

10)Endobronchial ultrasound

11)Endoscopic esophageal ultrasound

12)Mediastinoscopy and mediastinotomy

13)Thoracoscopy

14)Lung function tests

1.5. Treatment :[20]

Depending on its type and stage, lung cancer may be treated with surgery, chemotherapy or other medications, radiation therapy, local treatments such as laser therapy, or a combination of treatments.Treatment for lung cancer includes one or more of the following approaches.

- Surgery

Surgery is part of the treatment for early-stage lung cancers. The type of surgery depends on the size and location of the tumor in the lung, the extent of the cancer, the general health of the patient and other factors. Many surgeries are done with a long incision in the side of the chest, known as a thoracotomy. Some early stage tumors may be treated with video-assisted thoracic surgery (VATS), which uses several small incisions (instead of one large one) and special long surgical tools.Types of surgery include: Segmental or wedge resection: Removal of only a small part of the lung,Lobectomy: Removal of an entire lobe of the lung,Pneumonectomy: Removal of an entire lung,Sleeve resection: Removal of a piece of bronchus, after which the lung is reattached to the remaining part of the bronchus.

- Radiation Therapy**:**Radiation therapy is the use of high-energy radiation to kill cancer cells and to shrink tumors. Radiation may also be used with chemotherapy to treat lung cancer. The following techniques are used to deliver radiation therapy:External radiation (external beam therapy): A treatment that precisely sends high levels of radiation directly to the cancer cells. The machine is controlled by the radiation therapist. Because radiation is used to kill cancer cells and to shrink tumors, special shields may be used to protect the tissue surrounding the treatment area. Radiation treatments are painless and usually last a few minutes.

- Chemotherapy: Types of chemotherapy-Treatment for small cell lung cancer is different to non small cell lung cancer.Small cell lung cancer:You usually have a combination of chemotherapy drugs, including either cisplatin or carboplatin. Combinations include:EP (cisplatin and etoposide),carboplatin and etoposide,Gemcarbo (gemcitabine and carboplatin)Small cell lung cancer usually responds well to these treatments. But researchers are continuing to test other combinations to see if they can either improve the results, lessen the side effects, or both.Non small cell lung cancer:You are most likely to have cisplatin or carboplatin with at least one other chemotherapy drug such as:vinorelbine,gemcitabine,paclitaxel (Taxol),docetaxel (Taxotere),etoposide,Pemetrexed.Targeted Therapy:Targeted therapy is like chemotherapy in that it goes throughout the body in search of tumor cells. These are drugs that target specific parts of cancer cells or nearby cells that help them grow. So far, these drugs have only been found to be useful for some non-small cell lung cancers. There are specific names for the order in which treatment is given. Neoadjuvant treatment refers to having radiation or chemotherapy before surgery. Having one or both of these before surgery may help shrink the tumor, as a smaller tumor is easier to take out in surgery.Chemotherapy or radiation soon after surgery is called adjuvant treatment. The goal of adjuvant treatment is to kill any cancer cells that may be left after the surgery. Even if there is no sign of cancer cells, your doctor may suggest adjuvant treatment, as it may lower the risk that the cancer will come back or spread.Clinical trials are being conducted on prevention and treatment options for lung cancer, including photodynamic therapy and chemoprevention.

- Immunotherapy:Immunotherapy is a new cancer treatment approach that uses drugs, vaccines and other therapies to activate the immune system's natural defenses so it can fight cancer. One type of immunotherapy drug, called "anti-PD-1" has been shown to cause significant tumor regression in a quarter of patients who receive it after a round of chemotherapy.Three immunotherapy drugs—pembrolizumab, atezolizumab and nivolumab—have been approved to treat certain non-small cell lung cancers.

1.6. Preventing Lung Cancer[21]

The best prevention for lung cancer is to stop smoking — or never start.In fact, cigarette smoking is the leading cause of preventable diseases in the country, according to the Centers for Disease Control and Prevention. Quitting smoking has immediate health benefits that help minimize a person's risk of developing lung cancer.Exercising and eating a healthy, balanced diet also help reduce the risk of cancer. When you stay fit and active, it's easier to maintain a healthy weight, which is important in preventing chronic disease, like cancer. As a general rule of thumb, people should aim to keep their body mass index (BMI) below 25. Eating a well-balanced diet that meets all of your nutritional needs while limiting high-fat or processed foods also helps to lower your cancer risk.While these preventive measures may lower your risk, there's no definitive way to prevent lung cancer. Lung cancer screening for people at high risk of developing lung cancer offers hope for early detection, when surgery offers a possible cure.

MATERIALS & METHOD:

A survey was conducted through a google form link shared on social media.It was conducted from 13th April to 20th April 2022. A cross sectional study was conducted by questionnaire method and medical students were included.The questionnaire was based on Indian cancer society, American cancer society and research gate[22].The online questionnaire consists of socio- demographic characteristics including name,age, email,contact number, occupation and year of study.On receiving and clicking the link the participants will be directed to the page of information about the study and informed consent. After they agreed to participate in the survey they would have to fill up their details and then the set of several questions will appear consecutively which is to be answered.

RESULT/OBSERVATION:

The study was conducted among 85 medical students from India.After eliminating incomplete and biased responses n=83. Out of 83 participants 55 were female and 28 were male. This cross sectional study focussed on evaluating lung cancer awareness among medical students with mean age of 22+/-3 years in India out of which 8.4% are in 2nd year, 14.5% are in 3rd year, 48.2% are in 4th year and 28.9% are in Internship.

79.5% students think that those who smoke, much of the lung damage that can lead to cancer can heal spontaneously if they quit smoking.

41% of students are unsure whether tobacco or e cigarettes is a safe way to decrease lung cancer.

69.9% of students think that lung cancer doesn't cause symptoms until it's too late to cure.

77% students think lung cancer is the deadliest cancer in India.

42.2% of students think that 15-25% of lung cancer are small cell lung cancer.

49.4%students think that frequent chest x-rays help in early detection and decrease the mortality rate compared to less frequent screening .

66.2% students think that there is a 10-20% 5 year survival rate for lung cancer.

41% of students think that alpha-tocopherol is the best oral supplement to prevent lung cancer compared to retinol and beta-carotene.

Most of the students (85.6%) think that surgery with adjuvant chemotherapy is more beneficial than surgery alone.

48.2% students think that oral etoposide is associated with increased survival compared with combination chemotherapy.

77% of students think that people can prevent lung cancer by reducing risks.

55.4% of students say that palliative chemotherapy is associated with improved quality of life but there is no study evidence which proves that it will prolong survival rate.

90.4% of students think that there may be a chance of getting lung cancer even if you never smoke.

47% of students think that lung cancer ranks 2nd in cancer related deaths.

DISCUSSION:

Our study shows that the knowledge of lung cancer is more in fourth year and interns compared to second and third year students as in initial years of mbbs study students have less clinical and theoretical knowledge compared to last year and Interns.

In our study 90.4% students think that smoking is the risk factor for lung cancer which correlates with 82.1% participants of AL Nagar NA study [9] Smoking causes 80% death and may be higher in small cell lung cancer.

According to our research 42.1% students think that 80-95% lung cancer causes are majority due to smoking.while a similar study reported that 100% cases are due to smoking because smokers have a risk of getting lung cancer 20–40 times greater than those who do not smoke[5].

Our study show that 90.4% students think that even you never smoke but you have risk of getting lung cancer if you inhale smoke because inhaling cigarette smoke contains 69 types of carcinogens, including the most abundant substances, such as polycyclic aromatic hydrocarbons, arsenic, benzene, and nitrosamines which are harmful to the health.

66.2% of students think that there is a 10-20% 5-year survival rate for lung cancer.In Correspondence according to the American lung Association there is 18.6% 5-year survival rate for lung cancer.[4] .

Our study shows , 47% of students think that lung cancer ranks 2nd in cancer related deaths where 42.2% think it ranks first and 10% students think it ranks third. But according to death registry data, cancer related death Lung cancer ranks first with 1,27,070 people and colorectal cancer ranks 2nd with deaths of 52,550 people and pancreatic cancer ranks 3rd with 50,550 deaths.

In our research 41% of students are unsure whether tobacco or ecigarettes decrease lung cancer.Alternative tobacco products like ecigarettes and smokeless tobacco contain harmful chemicals and toxins which cause serious health problems like lung cancer[6].This shows lack of awareness and knowledge regarding E Cigarettes and smokeless tobacco.

CONCLUSION:

The findings of the study contribute to bridging a gap in the literature regarding lung cancer awareness among young adults in India.This segment of population consisting of medical students is crucial as they play a significant role in shaping public health policies and practices.

The study revealed that awareness of lung cancer was suboptimal.Despite being exposed to healthcare information and education ,the perceived seriousness of disease and personal susceptibility were relatively low in 2nd and 3rd year medical students. This lack of awareness may hinder early detection,prevention and timely intervention efforts towards lung cancer.

The findings emphasized the need for targeted interventions and national policies aimed at enhancing awareness,knowledge ,perception and susceptibility of lung cancer. By addressing these gaps , India can make significant strides in reducing the burden of lung cancer in the coming decades and improving public health outcomes.

CONFLICT OF INTEREST:

Authors declare no conflict of interest

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