

Original research article

A prospective analysis of chest xrays in patients with COPD

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ABSTRACT

Introduction: In ANY hospitals once a patient is labeled as COPD through out their life they receive broncho dilators ,and symptomatic treatment. We want to study the real scenario of all patients labeled as COPD and check their x rays TO RULE OUT any other underlying problems

Aim of the study ; This is a prospective study to analyze the radiological findings in patients with chronic obstructive pulmonary disease A chest X-ray is often done because it is fast and accessible and provides useful information in order to make decisions quickly about the patients

Materials and methods : All the patients attending thoracic medicine department with the diagnosis of copd taken for study .those patients with pre existing lung disease, like pulmonary tuberculosis, tumours, brochiectasis are excluded from this study

Results ;Of the 183 no of patients studied 82% of them exhibited no specific radiological findings and only features of COPD patients 4%had old healed pulmonary tuberculosis 2 % had acute pneumonitis and 12%superadded infections which precipitates acute exacebations

Conclusion: All the COPD patients should be screened with x-ray chest whenever necessary and frequently

Keywords: COPD, TUBERCULOSIS, ACUTE SEVERE COPD

Introduction;

Chronic Obstructive Pulmonary Disease, or COPD, refers to a group of diseases that cause airflow blockage and breathing-related problems. It includes emphysema, chronic bronchitis, and in some cases asthma.

Tobacco smoke is a key factor in the development and progression of COPD, although exposure to air pollutants in the home and workplace, genetic factors, and respiratory infections also play a major role. In the developing world, indoor air quality is thought to play a larger role in the development and progression of

COPD. In Coimbatore air pollution due to vehicles, cotton mills, chemicals from industries, all are responsible for hyperactive airways

Chronic lower respiratory disease, primarily COPD, was the third leading cause of death in the United States in 2014. Almost 15.7 million Americans (6.4%) reported that they have been diagnosed with COPD. Developing countries are changing fast. Socio-economic development, industrialization, urbanization, changing age structure, and changing lifestyles have the countries at a position where they are facing an ever increasing burden of non-communicable diseases (NCD). In India NCDs were estimated to have accounted for 53% of all deaths and 44% of disability-adjusted life-years (DALYs) lost in 2005. Of these chronic respiratory disease accounted for 7% deaths and 3% DALYs lost India also has had the ignominy of experiencing the "highest loss in potentially productive years of life" worldwide in 2005. Crude estimates suggest there are 30 million COPD patients in India. India contributes a significant and growing percentage of COPD mortality which is estimated to be amongst the highest in the world; i.e. more than 64.7 estimated age standardized death rate per 100,000 amongst both sexes. This would translate to about 556,000 in case of India (>20%) out of a world total of 2,748,000 annually. Such mammoth volumes of disease have the potential to overwhelm health systems and state economies.

More than 50% of adults with low pulmonary function were not aware that they had COPD, so the actual number may be higher. The following groups were more likely to report COPD

- ☐ People aged 65–74 years and ≥ 75 years.
- ☐ Children
- ☐ Women.
- ☐ Individuals who were unemployed, retired, or unable to work.
- ☐ Individuals who were divorced, widowed, or separated.

Current or former smokers.

- ☐ People with a history of asthma, hyperactive airways
- ☐ Traffic Police constables, drivers,
- ☐ Industrial, cotton mill, petrol bunk workers
- ☐ Homemakers who cook with firewood, inhale smoke, dhoop sticks, cowdung dust

Compared to adults without COPD, adults with COPD are more likely to

- ☐ Have activity limitations such as difficulty walking or climbing stairs.
- ☐ Be unable to work.
- ☐ Need special equipment such as nebulizers, inhalers.
- ☐ Not engage in social activities such as eating out, going to places of worship, going to group events, or getting together with friends or neighbors.
- ☐ Have increased confusion or memory loss.
- ☐ Have more emergency room visits or overnight hospital stays.
- ☐ Have other chronic diseases such as arthritis, congestive heart failure, diabetes, coronary heart disease, stroke, or asthma.
- ☐ Have depression or other mental or emotional conditions.
- ☐ Report a fair or poor health status.

Avoid inhaling tobacco smoke, home and workplace air pollutants, and respiratory infections to prevent developing COPD. Early detection of COPD might change its course and progress. A simple test, called spirometer analysis, can be used to measure pulmonary—or lung—function and detect COPD in anyone with breathing problems.

Treatment of COPD requires a careful and thorough evaluation by a physician. COPD treatment can alleviate symptoms, decrease the frequency and severity of exacerbations, and increase exercise tolerance. For those who smoke, the most important aspect of treatment is smoking cessation. Avoiding tobacco smoke and removing other air pollutants from the patient's home or workplace are also important.

Symptoms such as coughing or wheezing can be treated with medication. Pulmonary rehabilitation is an individualized treatment program that teaches COPD management strategies to increase quality of life. Plans may include breathing strategies, energy-conserving techniques, exercise training, and nutritional counseling. the respiratory physio therapy and yoga also can be useful. The flu can cause serious problems in people with COPD. Vaccination during flu season is recommended and respiratory infections should be treated with antibiotics, if appropriate. Patients who have low blood oxygen levels are often given supplemental oxygen. Although COPD cannot be diagnosed with a chest X-ray alone, it can help evaluate shortness of breath, help support a diagnosis of COPD, and detect advanced emphysema

Exposure to biomass fuels like crop residues or woods or animal dung is also widely prevalent in India. More than one-half of the world's households uses biomass fuels and a significant proportion of this activity takes place in conditions where much of the effluent is released into the indoor living area. This is more common in cold climates and hilly terrains where cold temperatures force a heavier exposure in poorly ventilated dwellings. Women, who do most of the cooking for households in rural villages, are the most affected. Biomass fuels are now considered a major cause of the causation of COPD and could be the single most common cause of COPD in the world. In India, 70% of the homes use biomass fuel for cooking and heating purposes in poorly ventilated kitchens, and the amount of particulate matter pollution generated by the burning of biomass fuel is extremely high. Ninety percent of rural households and 32% of urban households cook their meals on a biomass stove. with only 25% of the cooking being done with cleaner gases. Exposure to biomass smoke thus becomes a major risk factor for COPD in India. Mosquito coils used in homes to get rid of mosquitoes are another source of exposure in Indian homes; burning of one mosquito coil in the night capable of emitting

particulate matter equivalent to those with around 100 cigarettes. ^[20]

A chest X-ray is done at the time of initial diagnosis of COPD. Although routine follow-up chest X-rays are not usually done, many doctors advise smokers and recent ex-smokers to have this test every 1 to 2 years.

Abnormal chest X-ray findings are usually not seen until COPD is severe. In these cases, the X-ray may show:

- ☐ Flattening of the diaphragm
- ☐ Increased size of the chest, as measured from front to back. as barrel-shaped chest
- ☐ A long narrow heart.
- ☐ Abnormal air collections within the lung (focal bullae).

A normal chest X-ray does not mean the patients do not have COPD. It may be most useful for ruling out other conditions such as lung cancer heart failure, pneumonia, or tuberculosis

A chest X-ray may be ordered (along with other investigations) during an acute exacerbation of COPD, when the condition is complicated with fever or significant distress, if the patient has heart or other lung diseases, when seizures are present, in case of IV drug abuse, or before surgery.

High resolution CT scans may also be used, as they are more accurate to evaluate emphysema as well as the need for surgery in some COPD patients. This test can also suggest the alpha-1 antitrypsin deficiency, as condition that increases the chance to develop COPD. Advise the patients to Keep a copy of all the chest X-rays they have done. By comparing older tests with a new one, we can better assess the current status of the patients

Symptoms such as chest pain, difficulty breathing, and decreased ability to exercise can be a lung problem, but it can also be a heart problem. A chest X-ray can provide valuable information about heart and blood vessels such as heart size, blood vessel size, signs of fluid around the heart, and calcifications or hardening of valves and blood vessels. A chest X-ray can also

reveal broken ribs or other problems with the bones in and around the chest.

Unlike a standard X-ray, which provides a flat, one-dimensional picture, CT scans provide a series of X-ray images taken from different angles. It gives doctors a cross-section look at the organs and other soft tissue. A CT scan gives a more detailed view than a regular X-ray. It can be used to check for blood clots in the lungs, which a chest X-ray can't do. A CT scan can also pick up much smaller detail, identifying problems, like cancer, much earlier. It is often used to follow up any abnormalities seen within in the lungs on a chest X-ray.

It's not uncommon for doctor to recommend both a chest X-ray and a CT scan depending on your symptoms. COPD is commonly separated into four stages: mild, moderate, severe and very severe. The stages are determined based on a combination of lung function and symptoms. A number grade is assigned based on your lung function, the higher the number the worse your lung function. Lung function is based on you forced expiratory volume in one second (FEV1); it measures how much air you can exhale from your lungs in one second.

A letter grade is assigned based on how your symptoms affect your daily life and how many flare-ups of COPD you have had in the last year. Group A individuals have the least symptoms and the fewest flare-ups. Group D individuals have the most

symptoms and flares. A questionnaire such as the COPD Assessment Tool (CAT) is typically used to evaluate how your COPD symptoms impact your life.

An easy way to think about the stages are as follows.

There are also variations within the grading system:

- ☐ Patient group 1 A: Mild COPD with a FEV1 of about 80 percent of normal. Few symptoms in daily life and few flare-ups.
- ☐ Patient group 2 B: Moderate COPD with a FEV1 of between 50 and 80 percent of normal.
- ☐ Patient group 3 C: Severe COPD with a FEV1 of between 30 and 50 percent of normal.
- ☐ Patient group 4 D: Very severe COPD with a FEV1 less than Stage 3 or with the same FEV1 as Stage 3, but with low blood oxygen levels, too. Symptoms and complications of COPD significantly affect quality of life.

Recently, this grading system has been modified several times. The hope is that the system guides doctors on how to best treat patients based on both their lung function and their symptoms and not just one or the other.

Of the 183 no of patients studied 82% of them exhibited no specific radiological findings and only features of COPD patients 4%had old healed pulmonary tuberculosis 2 % had acute pneumonitis and 12%superadded infections which precipitates acute exacerbations

Sl no	male	female	children	total
STUDIED	101	76	6	183
Pul TB OLD	7	1	0	8
ACUTE PNEUMONITIS	4	0	0	4
SUPER ADDED INFECTIONS	14	6	1	21

Discussion

Even when a person with symptoms does present to general practitioners, levels of under-diagnosis are high. Spirometries are not routine and diagnosis is largely symptom based. Prescription of inhalational devices is attributed to the 'terminal stage' of the disease and such devices carry a virtual stigma in rural settings. Additionally, a good majority gets treated by local 'hakims', practitioners of alternative medicine and faith-healers; who not infrequently dispense harmful and toxic agents that have at times included steroids.

[\[21\]](#)

Conclusion

All guidelines aim to improve health care processes and outcomes through minimization of practice variation, and optimization of resources. They are aimed to be utilized in busy practices to ensure scientifically valid outcomes.

However, guidelines alone cannot improve patient care. Physicians must be committed to guideline dissemination and implementation for patient outcomes to improve. The three-part mission of COPD guidelines includes systematic development, dissemination, and implementation.

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