

A Review of Bronchitis (Acute and Chronic)

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Abstract- Bronchitis is inflammation of the bronchi (large and medium sized airway) in the lungs that causes coughing. Bronchitis is spread by coughing (airway respiratory droplets), by saliva (kissing or shared drinks), by touching contaminated surface, by skin to skin contact (handshakes or hugs). According to the centers for Disease Control & Prevention (CDC). People with certain underlying health conditions may be at higher risk of severe illness from Covid-19 especially if they do not have these conditions under control. Bronchitis does not cause Covid-19 (Coronavirus Disease 2019) and based on current information it does not appear to increase a person's risk of developing the disease. Like bronchitis Covid-19 also affects the respiratory tract, including the lungs. It can therefore lead to Pneumonia or Acute Respiratory Disease. Acute Bronchitis affects more than 40 in 1000 adults per year in U.K. and 10 million peoples per year in India. The causes are usually considered to be infective, but only around half of peoples have identifiable pathogens. The role of smoking is susceptible to acute bronchitis is unpredictable. The large number of IBV (Infectious Bronchitis Virus) lives worldwide, some being unique to a particular area, others having a more general distribution.

Index terms- Bronchitis, Chronic Obstructive Pulmonary Disease, Covid-19, Inflammation, Acute Bronchitis

1. INTRODUCTION

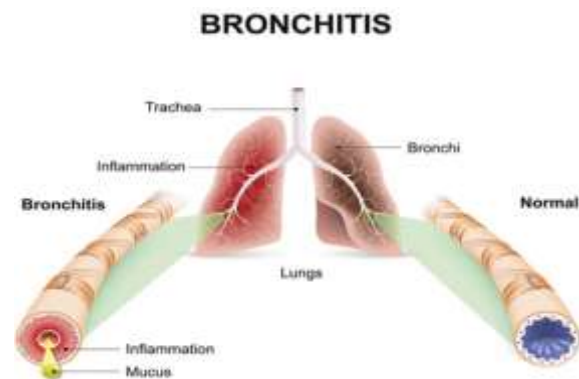
A disease is particularly abnormal condition that negatively affects the structure or function of all or part of an animal, and that is not due to any immediate external injury. Bronchitis is an inflammation of the bronchi, the larger airways inside the lungs. Bronchitis is different from Bronchiolitis [6]. Due to inflammation of bronchi that causes coughing. The bronchi branch off on either side of your trachea. That leads to smaller & smaller airways inside your lungs known as bronchioles [14]. People with bronchitis regularly cough up thickened mucus, which can be discolored[15]. When bronchioles become inflamed it causes narrowing, constriction &

blockage of airways. Bronchitis can be Acute (lasting less than six weeks) or Chronic (recurring multiple times for more than two years)[16].

2. HISTORY OF INFECTIOUS BRONCHITIS VIRUS (IBV)

For many years it was widely believed to that the first variant of IBV (infectious bronchitis virus) occurred in early 1950s. When Jungherr et al.(1956) in the USA showed that the Connecticut (conn) isolate of 1951 neither cross-neutralised nor cross protected with the original Massachusetts(Mass) isolate from the early 1940s[3]. Antibodies to several "American" and "European" IBV variants have been demonstrated in Pakistan, but virological studies have still to be performed. An IBV isolated in India in the early 2000s from cases of nephritis was reported to have a unique SI sequence, indicating it to be different from other known IBVs (Bayry et al., 2005) [5]. Coronavirus genetically similar to IBV are being increasingly detected in avian species and also found in galliform and non-galliformbirds [17].

3. BRONCHITIS



Bronchitis is a condition in which the bronchi & bronchioles not work properly due to inflammation & swelling and this can decrease ability of lungs to work properly [8]. Symptoms include sneezing,

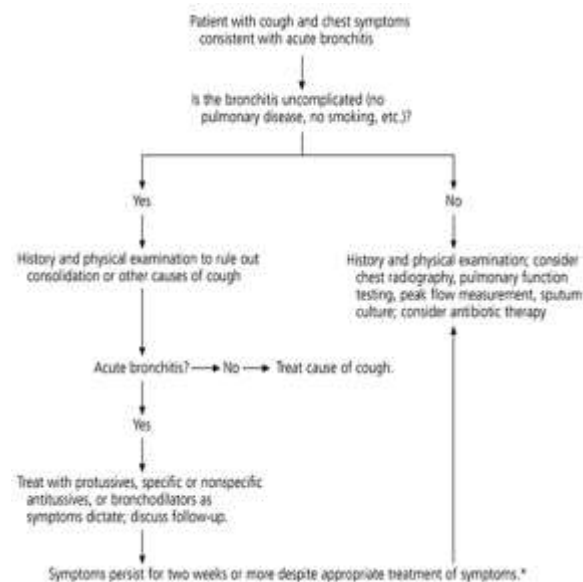
coughing, shortness of breath, chest pain [9].
Bronchitis mainly classified into following types.

- Acute Bronchitis
- Chronic Bronchitis

4. ACUTE BRONCHITIS

Acute bronchitis is usually caused viral infection like influenza A & B, coronavirus, rhinovirus etc.[18]. Risk factor for developing this condition include smoking & regular exposure to pollutants [9]. Acute bronchitis is an acute infection of the tracheobronchial trees [19]. Mostly acute bronchitis is also called as “Chest Cold” which is most common type of bronchitis. The disorder affects approximately 5% adults annually with a higher incidence observed during the winter and fall than in summer [20]. Initially in acute bronchitis the cough is dry and may should harsh or raspy which subsequently loosens and become productive [6]. It is assumed that acute bronchitis reflects on inflammatory response to infection of the epithelium of the bronchi. Microscopic examination demonstrate thickening of the bronchial & tracheal mucosa corresponding to the inflamed areas. Bronchitis has shown to reduce the quality of life patient peroxidase released by the leukocytes in sputum causes the colour changes; hence colour alone should not be considered indicative of bacterial infection [21].

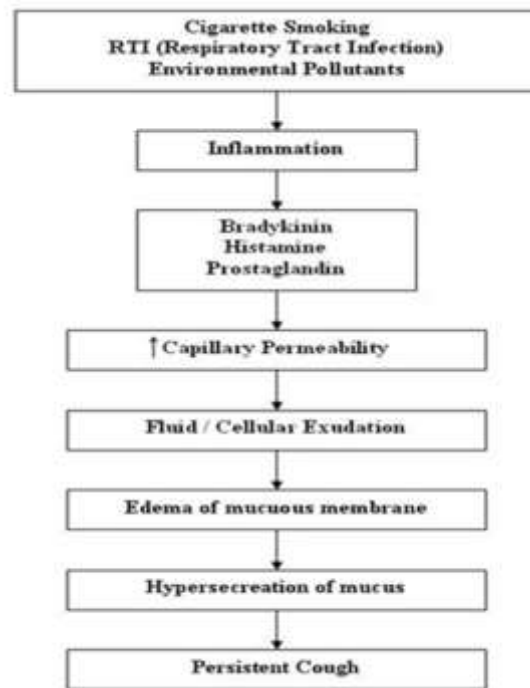
Pathophysiology of acute bronchitis:- fig.2



5. CHRONIC BRONCHITIS

Chronic bronchitis is defined as the presence of productive cough for 3 months in two successive years in a patient whom other causes of chronic cough, such as tuberculosis, lung cancer & heart failure have been excluded. Earlier study did not show a relationship between chronic B and COPD incidence but subsequent studies suggest that chronic bronchitis may represent an early marker of susceptibility to the effect of cigarette smoking and may identify a sub group of patient with an increased risk of developing COPD [22]. The presence of chronic B is associated with degenerated airflow obstruction and progressive declined in lung function. The presence of chronic B without airflow obstruction seems to predict the development of COPD [23]. Chronic cough & sputum production have long been recognized as a consequence of tobacco smoking. Chronic B can be define by using chronic mucus hypersecretion “emission of >30ml of sputum daily at least 3 months a year for >1yr. Chronic B affects people of all ages but is more prevalent in people over 45 years of age[24]. The present study showed that male gender was a significant predictor of chronic B[24].

Pathophysiology of chronic bronchitis: - fig.3



6. CAUSES

- The bronchitis can be caused by either a virus or bacteria [12].
- Bronchitis can also be caused by the same viruses that cause the common cold or influenza (flu)[11].
- Bronchitis can also be caused by breathing irritant substances such as smog, chemicals in household products or tobacco smoke [10].
- Smoking is main cause of chronic (long-term) bronchitis [15].

7. SYMPTOMS

- Persistent cough with thick yellow gray mucous [15].
- A tight feeling in chest [12].
- Breathlessness [12].
- Wheezing [12].
- Sore throat [12].
- Slight fever and chills [8].
- Headache [12].
- Blocked nose and sinuses [10].
- Body aches and pains [12].

8. PREVENTION

The prevention of bronchitis are as follows.

- Avoid smoking.
- Avoid exposure to passive smoke.
- Practice good hand hygiene.
- Provide proper and recommended immunizations to the children [10].

9. TREATMENT

Treatment is divided into Self-care& Medications.

1. Self-care
 - a. Throat lozenge.
 - b. Quitting smoking [16].
2. Medications
 - a. Non-steroidal anti-inflammatory drugs.
 - b. Cough medicine [12].

10. CONCLUSION

Bronchitis is a global disease with increasing prevalence & health related impact. Bronchitis occurs due to cigarette smoking or other exposures to inhale toxic agents is one of the most common cause of cough in general population. The most effective way to eliminate cough is the avoidance of all respiratory irritants.

The purpose of this review is to present the basic information including causes, symptoms, treatment & prevention from bronchitis.

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