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Original Research

Assessment of cases of Chronic bronchitis

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ABSTRACT:

Background: Chronic bronchitis is characterised by cough and hypersecretion of mucus and associated with chronic inflammation in the airways. The present study was conducted to assess cases of chronic bronchitis. **Materials & Methods:** 74 suspected patients of chronic bronchitis of both genders were classified into 2 groups. Group I were having chronic bronchitis and group II had no chronic bronchitis. Lung function was tested according to American Thoracic Society (ATS)/European Respiratory Society (ERS) spirometry criteria using the Jaeger MasterScreen-IOS system and postbronchodilator lung function was tested. **Results:** The mean age in group I was 34.6 years and in group II was 40.1 years, education level was primary in 17 and 22, high in 12 and 3 and secondary in 8 and 12. There were 22 smokers in group I and 12 in group II and 35 in group II. FEV1 was 95.2% in group I and 97.9% in group II, FEV1 <LLN was seen among 12 in group I and 34 in group II, FVC was 100.0% in group I and 99.2 in group I and FEV1/FVC was 81.2% in group I and 83.4 in group II. The difference was significant (P< 0.05). **Conclusion:** Risk factors for bronchitis was smoking and low education.

Key words: bronchitis, Cough, Smoking

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INTRODUCTION

Chronic bronchitis is characterised by cough and hypersecretion of mucus and associated with chronic inflammation in the airways.¹ In addition, chronic bronchitis is associated with acute respiratory health events, including exacerbations and hospitalisations as well as airflow obstruction, progressive lung function decline and eventually higher all-cause mortality.²

Chronic bronchitis is common in the general adult population and the prevalence ranges from 3.6% to 22% worldwide, and from 5.5% to 7.2% in Sweden. Moreover, the prevalence is even higher in smokers with COPD, ranging from 19% to 74% Due to the enhanced prevalence in the elderly and patients with COPD, few studies on chronic bronchitis have focused on young adults. Most of these studies include subjects aged 18–40 years, and report prevalence ranging from 1% to 10%. However, little is known about the prevalence and early-life risk factors for chronic bronchitis in the specific age group of young adults in their early twenties.³

Cigarette smoking is the most important risk factor for the development of chronic bronchitis. Over 90 percent of patients with chronic bronchitis have a smoking history, although only 15 percent of all cigarette smokers are ultimately diagnosed with some form of obstructive airway disease.⁴ Studies have demonstrated persistent markers of active airway inflammation in bronchial biopsy specimens from symptomatic ex-smokers, even after they had been smoke-free for 13 years.⁵

The overall 10-year mortality rate following the diagnosis of chronic bronchitis is 50 percent, with respiratory failure following an acute exacerbation being the most frequent terminal event. Such acute exacerbations are often precipitated by bacterial infection, manifested by purulent sputum, fever and a worsening of the symptoms of poor ventilation.⁶ The present study was conducted to assess cases of chronic bronchitis.

MATERIALS & METHODS

The present study comprised of 74 suspected patients of chronic bronchitis of both genders. All were informed regarding the study and their written consent was obtained. Data such as name, age, gender etc. was recorded. A thorough examination was carried. Chronic bronchitis (CB) was assessed as the combination of cough and mucus production in the morning during winter. They were classified into 2 groups. Group I were having chronic bronchitis and group II had no chronic bronchitis. Lung function was tested according to American Thoracic Society (ATS)/European

Respiratory Society (ERS) spirometry criteria using the Jaeger MasterScreen-IOS system and postbronchodilator lung function was tested. The highest values of pre- and post-forced expiratory volume in 1 s (FEV₁) and forced vital capacity (FVC) were recorded. Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

RESU	LTS	
Table	I Distribution	of patients

Groups	Group I	Group II	P value
Mean age (years)	34.6	40.1	0.12
Education primary	17	22	0.24
High	12	3	
Secondary	8	12	
Smoker	22	12	0.05
Non- smoker	15	25	

Table I shows that the mean age in group I was 34.6 years and in group II was 40.1 years, education level was primary in 17 and 22, high in 12 and 3 and secondary in 8 and 12. There were 22 smokers in group I and 12 in group II and 15 non- smokers in group I and 25 in group II. The difference was significant (P<0.05).





Table II Comparison of parameters

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Parameters	Group I	Group I	P value		
FEV1 %	95.2	97.9	0.14		
FEV1 <lln< td=""><td>12</td><td>34</td><td>0.01</td></lln<>	12	34	0.01		
FVC %	100.0	99.2	0.91		
FEV1/FVC %	81.2	83.4	0.05		

Table II, graph II shows that FEV1 was 95.2% in group I and 97.9% in group II, FEV1 <LLN was seen among 12 in group I and 34 in group II, FVC was 100.0% in group I and 99.2 in group I and FEV1/FVC was 81.2% in group I and 83.4 in group II. The difference was significant (P< 0.05).



Graph II Comparison of parameters

DISCUSSION

Chronic bronchitis is one of the principal manifestations of chronic obstructive pulmonary disease (COPD), the fourth leading cause of death in the United States.⁷ About 10 million Americans are affected by some degree of COPD; it causes 40,000 deaths annually.8 Chronic bronchitis is a clinical diagnosis characterized by a cough productive of sputum for over three months' duration during two consecutive years and airflow obstruction.⁹ These requisites exclude more transient causes of cough associated with sputum production, such as acute bronchitis.¹⁰The airflow obstruction in chronic bronchitis is caused by excessive tracheobronchial mucus production and is distinct from the anatomic findings of distal air space distention and alveolar septa destruction, which define emphysema.^{11,12} The present study was conducted to assess cases of chronic bronchitis.

In present study, mean age in group I was 34.6 years and in group II was 40.1 years, education level was primary in 17 and 22, high in 12 and 3 and secondary in 8 and 12. There were 22 smokers in group I and 12 in group II and 15 non- smokers in group I and 25 in group II. Wang et al^{13} assessed the prevalence and early-life risk factors for chronic bronchitis in young adults. Questionnaire data and clinical measures from the 24-year follow-up of the Swedish BAMSE (Child (Barn), Allergy, Milieu, Stockholm, Epidemiological) cohort were used. We assessed chronic bronchitis (CB) as the combination of cough and mucus production in the morning during winter. Environmental and clinical data from birth and onwards were used for analyses of risk factors. At the 24-year follow-up, 75% (n=3064) participants completed the questionnaire and 2030 performed spirometry. The overall prevalence of CB was 5.5% (n=158) with similar estimates in males and females. 49% of CB cases experienced more than three selfreported respiratory infections in the past year compared to 18% in non-CB subjects (p<0.001), and 37% of cases were current smokers (versus 19% of non-CB cases). Statistically significant lower postbronchodilator forced expiratory volume in 1 s/forced vital capacity were observed in CB compared to nonsubjects (mean z-score -0.06 versus 0.13, CB p=0.027). Daily smoking (adjusted (a)OR 3.85, p<0.001), air pollution exposure (black carbon at ages 1–4 years aOR 1.71 per 1 μ g·m⁻³ increase, p=0.009) and exclusive breastfeeding for ≤ 4 months (aOR 0.66, p=0.044) were associated with CB.

We found that FEV1 was 95.2% in group I and 97.9% in group II, FEV1 <LLN was seen among 12 in group I and 34 in group II, FVC was 100.0% in group I and 99.2 in group I and FEV1/FVC was 81.2% in group I and 83.4 in group II. Forey et al¹⁴ of 218 studies identified, 133 provide data for COPD, 101 for CB and 28 for emphysema. RR estimates are markedly heterogeneous. Based on random-effects metaanalyses of most-adjusted RR/ORs, estimates are elevated for ever smoking (COPD 2.89, CI 2.63-3.17, n = 129 RRs; CB 2.69, 2.50-2.90, n = 114; emphysema 4.51, 3.38-6.02, n = 28), current smoking (COPD 3.51, 3.08-3.99; CB 3.41, 3.13-3.72; emphysema 4.87, 2.83-8.41) and ex smoking (COPD 2.35, 2.11-2.63; CB 1.63, 1.50-1.78; emphysema 3.52, 2.51-4.94). For COPD, RRs are higher for males, for studies conducted in North America, for cigarette smoking rather than any product smoking, and where the unexposed base is never smoking any product, and are markedly lower when asthma is included in the COPD definition. Variations by sex, continent,

smoking product and unexposed group are in the same direction for CB, but less clearly demonstrated. For all outcomes RRs are higher when based on mortality, and for COPD are markedly lower when based on lung function. For all outcomes, risk increases with amount smoked and pack-years. Limited data show risk decreases with increasing starting age for COPD and CB and with increasing quitting duration for COPD. No clear relationship is seen with duration of smoking.

CONCLUSION

Authors found that risk factors for bronchitis was smoking and low education.

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