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RESEARCH ARTICLE

A Prospective and Retrospective Study of Acute Bronchitis in Hillah City-Iraq

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ABSTRACT:
Acute bronchitis is a clinical term implying a self-limited inflammation of the large airways of the lung that is characterized by cough without pneumonia. The purpose of this study is to study of acute bronchitis in Hillah City-Iraq and to identify factors that are, and are not, associated with these practices. A total of 127 patients fit this criterion, and were included in the study. Factors such as patient age, gender, residential area, chief complaint (cough, shortness of breath, sinus pain, chest pain and fever), heart rate, respiratory rate and medications prescribed during the visit were obtained from the database. During the study period, there were 127 cases of acute bronchitis. Distribution of acute bronchitis according to respiratory rate and gender that there were 97(76.38%) [male: 77(79.38%) and female: 20(20.62%)] less 20 and 30(23.62%) [male: 22(73.33%) and female: 8(26.67%)]. Also acute bronchitis cases had been distributed according to heart rate (more 100 and less 100) were 47(74.60%), 52(81.25%) respectively in male and 16(25.39%), 12(18.75%) respectively in female.

KEYWORDS: Acute bronchitis**,** Chief complaint, Heart rate**,** Respiratory rate, Smoking status.

INTRODUCTION:

Epidemiological studies have shown that the majority of cases of acute bronchitis are caused by viruses, with bacterial pathogens accounting for 5–10% of acute bronchitis in cases uncomplicated by underlying pulmonary disease[1-5]. Acute bronchitis is thought to reflect an inflammatory response to infections of the epithelium of the bronchi [6]. Epithelial-cell desquamation and denuding of the airway to the level of the basement membrane in association with the presence of a lymphocytic cellular infiltrate have been demonstrated after influenza A trachea-bronchitis; microscopical examination has shown thickening of the bronchial and tracheal mucosa corresponding to the inflamed areas. Bacterial species commonly implicated in community-acquired pneumonias are isolated from the sputum in a minority of patients with acute bronchitis.

However, the role of these species in the disease or its attendant symptoms remains unclear, because bronchial biopsies have not shown bacterial invasion[7-10]. In some cases, atypical bacteria are important causes, including *Bordetella pertussis*, *Chlamydophila* (Chlamydia) *pneumoniae*, and *Mycoplasma pneumoniae*. Some data have suggested that B. pertussis may underlie 13 to 32% of cases of cough lasting 6 days or longer, although in a recent prospective study, B. pertussis comprised only 1% of cases of acute bronchitis[11]. Acute bronchitis is a self-limited inflammatory disorder of the upper airways that affects approximately 5% of people in the United States each year[12]. Many studies report that antibiotics are frequently prescribed for URIs despite evidence that they provide little to no benefit to the patients[13,14]. Cough is the primary symptom of acute bronchitis. By definition, adults with acute bronchitis present with a cough illness of less than 3 weeks' duration. Although localized symptoms (such as nasal congestion, runny nose, sore throat) associated with non-specific respiratory infections (colds) may be present with acute bronchitis, systemic symptoms such as fever, myalgia, nausea, malaise, and dyspnea are typically absent[15].

However, it is not uncommon for individuals with acute bronchitis to experience bronchospasm and wheezing, especially if there is an underlying history of asthma. Cough control is the goal of symptom management for acute bronchitis1; however, there is currently no "best" treatment strategy to facilitate this. Although multiple pharmacologic preparations are available for the treatment of cough, there is a dearth of published research literature related to support them. In addition, results from the available studies have been mixed and/or have shown treatments to be minimally effective[16-19]. Historically, Infectious bronchitis virus has been known as a respiratory pathogen. Later, other clinical manifestations and postmortem signs associated with IBV have been reported. Clinical data support that antibiotics do not significantly change the course of acute bronchitis, and may provide only minimal benefit compared with the risk of antibiotic use itself. In children, however acute cough can last an average of 25 days[20]. Nonetheless, cough guidelines define acute cough lasting as long as up to eight weeks – under some circumstances, i.e., if elicited by adenovirus, mycoplasma pneumoniae or Bordatella pertussis infection[21-23]. Some people are using the definition of subacute cough[24], lasting 3–8 weeks. Although antibiotics are not recommended for routine use in patients with bronchitis, they may be considered in certain situations[25]. When pertussis is suspected as the etiology of cough, initiation of a macrolide antibiotic is recommended as soon as possible to reduce transmission; however, antibiotics do not reduce duration of symptoms.

MATERIALS AND METHODS:

This is a prospective study conducted via structured chart data extraction of all patients presenting to the Hillah teaching hospital Marjan Hospital in Hillah city-Iraq from October 1, 2016 through March 31, 2017 with a primary diagnosis of acute bronchitis. This diagnosis was defined by attending and resident physician entry of acute bronchitis into the patient's electronic medical chart on discharge from the ED. A total of 127 patients fit this criterion, and were included in the study. Factors such as patient age, gender, residential area, chief complaint (cough, shortness of breath, sinus pain, chest pain and fever), heart rate, respiratory rate and medications prescribed during the visit were obtained from the database. Severity of substance abuse was not reported. Frequencies, percentages, means, and associated SDs were used to describe the patient population. P-Values < 0.05 were considered significant. Data were analyzed with SPSS, version 17.0 (SPSS, Inc., Chicago, IL).

Table 1. Acute bronchitis according to Gender and Age.

Gender	Age						Total
	1-10	11-20	21-30	31-40	41-50	51-60	
Male	22(73.33%)	23(88.46%)	26(47.29%)	18(78.26%)	5(62.50%)	5(100%)	99(77.95%)
Female	8(26.67%)	3(11.54%)	9(25.71%)	5(21.74%)	3(37.50%)	0(0.0%)	28(22.05%)
Total	30(23.62%)	26(20.47%)	35(27.56%)	23(18.11%)	8(6.29%)	5(3.94%)	127

Table 2. Acute bronchitis according to Gender and Chief complaint.

Gender	Chief complaint			Total
	Shortness of breathing	Fever	Cough	
Male	8(72.72%)	4(100%)	87(77.68%)	99(77.95%)
Female	3(27.27%)	0(0.0%)	25(22.32%)	28(22.05%)
Total	11(8.66%)	4(3.15%)	112(88.19%)	127

Table 3. Acute bronchitis according to gender and smoking status.

Gender	Smoking status			Total
	Smoking		No	
	Ex	Current		
Male	11(91.67%)	14(87.50%)	74(74.74%)	99(77.95%)
Female	1(8.33%)	2(12.50%)	25(25.25%)	28(22.05%)
Total	12(9.45%)	16(12.59%)	99(77.95%)	127

RESULTS AND DISCUSSION:

Acute bronchitis is a clinical term implying a self-limited inflammation of the large airways of the lung that is characterized by cough without pneumonia[26, 27]. In our study a total of 127 cases were included who admitted in the Hillah Teaching Hospital from 1st October 2016 to 30th Mach 2017. **Table 1** shows that there were 99(77.95%) male and 28(22.05%) female. The highest numbers of acute bronchitis were in the age group of 21–30 years, that was 35(27.56%) followed by 11–20 years 26(20.47%). Distribution of acute bronchitis according to gender and chief complaint, that there were 11(8.66%) [male: 8(72.72%) and female: 3(27.27%)] Shortness of breathing and 4(3.15%) [male: 4(100%) and female: 0(0.0%)] fever. Acute bronchitis recorded 112(88.19%) [male: 87(77.68%) and female: 25(22.32%)] cough **Table 2**. In **Table 3** shows distribution of acute bronchitis cases according to gender and smoking status (ex-smokers, current-smokers, and no-smokers) were 11(91.67%), 14(87.50%) and 74(74.74%), respectively in male and 1(8.33%), 2(12.50%), and 25(25.25%) respectively in female.

Table 4. Acute bronchitis according to Heart rate and gender.

Gender	Heart rate		Total
	More 100	Less 100	
Male	47(74.60%)	52(81.25%)	99(77.95%)
Female	16(25.39%)	12(18.75%)	28(22.05%)
Total	63(49.61%)	64(50.39%)	127

Also acute bronchitis cases had been distributed according to heart rate (more 100 and less 100) were 47(74.60%), 52(81.25%) respectively in male and 16(25.39%), 12(18.75%) respectively in female **Table 4, Figure 1**.

Table 5. Acute bronchitis according to respiratory rate and gender.

Gender	Respiratory rate		Total
	More 20	Less 20	
Male	77(79.38%)	22(73.33%)	99(77.95%)
Female	20(20.62%)	8(26.67%)	28(22.05%)
Total	97(76.38%)	30(23.62%)	127

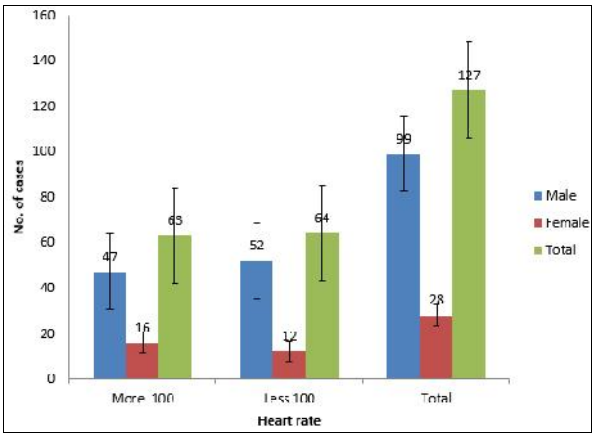

Figure1. Patients of acute bronchitis according to Heart rate and gender

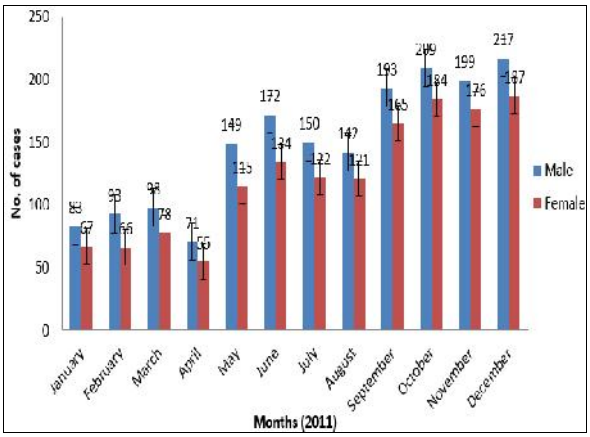

Figure 4. Distribution of patients (acute bronchitis) during 2011.

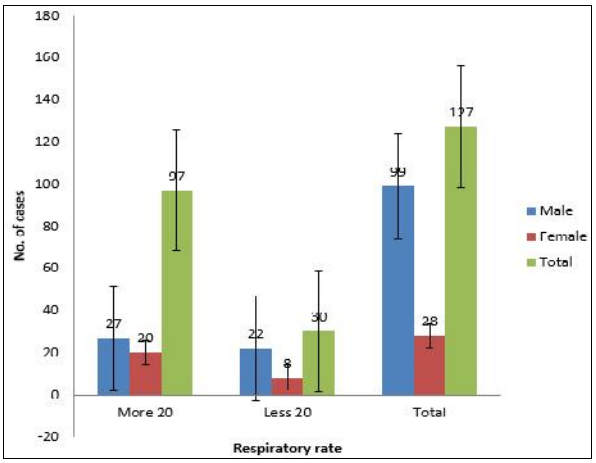

Figure2. Patients of acute bronchitis according to Respiratory rate and gender

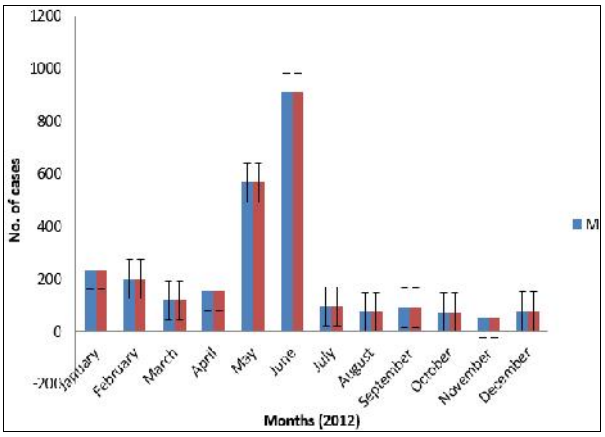

Figure 5. Distribution of patients (acute bronchitis) during 2012.

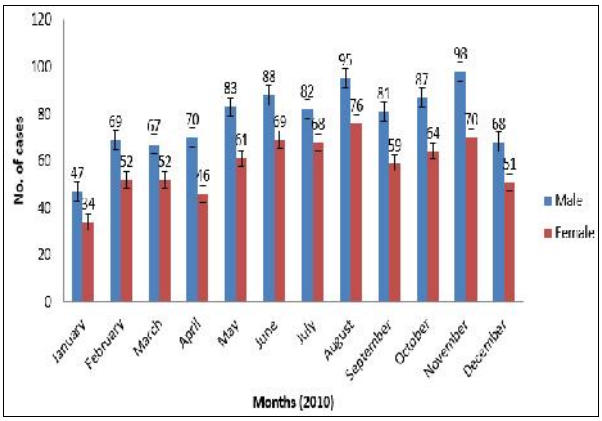

Figure 3. Distribution of patients (acute bronchitis) during 2010.

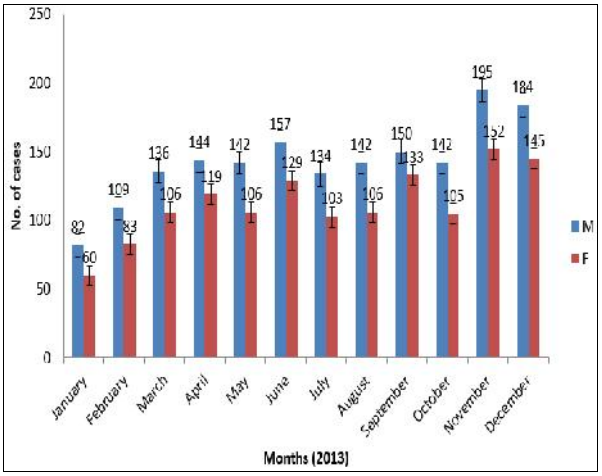

Figure 6. Distribution of patients (acute bronchitis) during 2013.

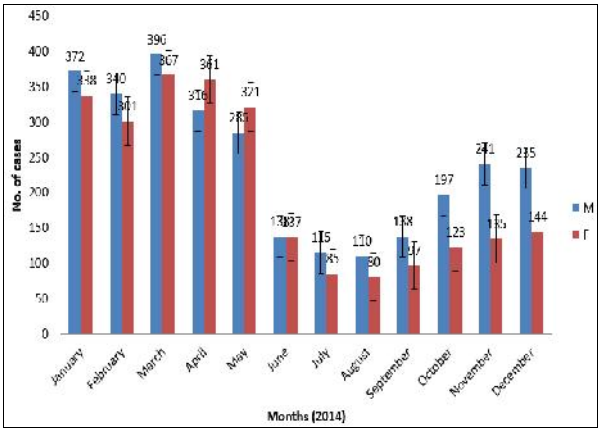

Figure 7. Distribution of patients (acute bronchitis) during 2014.

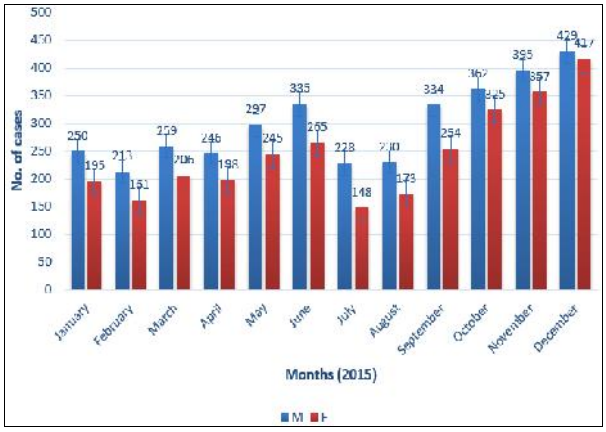

Figure 8. Distribution of patients (acute bronchitis) during 2015.

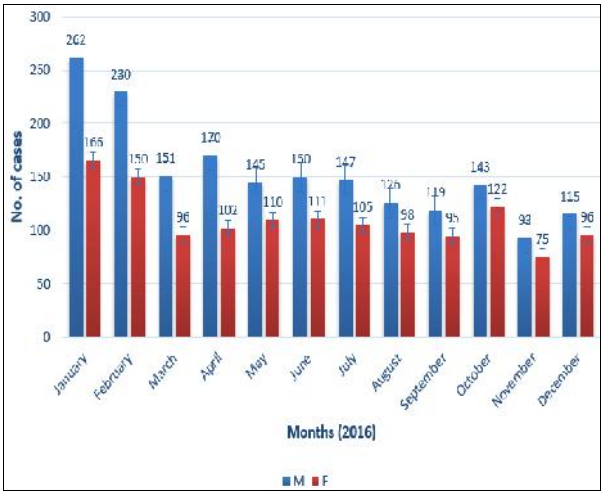

Figure 9. Distribution of patients (acute bronchitis) during 2016.

Distribution of acute bronchitis according to respiratory rate and gender that there were 97(76.38%) [male: 77(79.38%) and female: 20(20.62%)] less 20 and 30(23.62%) [male: 22(73.33%) and female: 8(26.67%)] **Table 5, Figure 2**. In **Figure 3-9** show distribution of patients with acute bronchitis according to the number of cases and months male and female during 2010, 2011, 2012, 2013, 2014, and 2015 respectively. The disorder affects approximately 5% of adults annually, with a higher incidence observed during the winter and fall than in the summer and spring. In the United States, acute bronchitis is the ninth most common illness among outpatients, as reported by physicians[28]. Acute bronchitis should be differentiated from acute inflammation of the small airways asthma or bronchiolitis which typically presents as progressive cough accompanied by wheezing, tachypnea, respiratory distress, and hypoxemia. It should also be distinguished from bronchiectasis, a distinct phenomenon associated with permanent dilatation of bronchi and chronic cough. Additional diagnostic tests are usually not warranted in the absence of signs and symptoms of pneumonia, pertussis, or influenza[29, 30]. There are numerous medicinal herbs for bronchitis that can be used as a treatment and relief. The main goal of these herbs is to restore the movement to the cilia (the tiny hairs that operate as filters in the bronchial tubes) and reduce the inflammation and swelling in the bronchial tubes[31-40]. Echinacea *(Echinacea pupurea or angustifolia)*: a lymphatic herb that stimulates the body's innate ability to fight off acute illness by increasing white blood cell count, and killer T-cells. Anti-microbial are a group of plants that work in several ways. They can inhibit the proliferation of a virus or bacteria, and stimulate the body's innate ability to recover. *Zingerber offician*: stimulates blood flow, warming and stimulating expectorant, anti-viral action. *Thymus vulgaris*: anti-bacterial, damp coughs, colds, flu, digestive complications associated with viral or bacterial infections, mild expectorant. *Plantago major*: demulcent, speeds healing of mucus membranes, anti-inflammatory[41-48].

CONCLUSION :

Our study included all patients with a primary diagnosis of acute bronchitis during our specified time period. The best defense against acute bronchitis is to quit. Smoking damages your bronchial tree and puts you at risk for infection. Smoking also slows down the healing process.

RECOMMENDATIONS:

1. Most cases of acute bronchitis can be treated at home.
2. Drink fluids, but avoid caffeine and alcohol.
3. Get plenty of rest.
4. Take over-the-counter pain relievers to reduce inflammation, ease pain, and lower your fever. Acetaminophen (Tylenol) also helps ease pain and lower your fever.
5. Use cough medicine, if your child is age 6 or older.
6. Increase the humidity in your home or use a humidifier.

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