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RESEARCH ARTICLE
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PHARMACOTHERAPY OF BRONCHITIS IN HAYATABAD MEDICAL COMPLEX PESHAWAR

Dr Israr Ullah RPH[1], Dr. Roman Wazir[2], Dr. Huma Masroor[3], Nusrum Iqbal[4], Wasif Ullah[5], Dr Arif hayat[6*]

[1]Pharmacist, Department of Pharmacy, Shaheed Benazir Bhutto University (SBBU), Sheringal
[2]Consultant medical specialist, Department of internal medicine Fatima Binte Mubarak model hospital sholam, South Waziristan Wana
[3]Demonstrator (Pharmacology Deptt), DGKhan Medical College, DG Khan
[4]HOD Internal Medicine, MD Health Center, Lahore
[5]Pharmacist, Department of Pharmacy, Shaheed Benazir Bhutto University (SBBU), Sheringal
[6*]Resident Pulmonologist, Hayatabad medical complex Peshawar, drarifhayat@gmail.com

***Corresponding Author:** Dr Arif hayat
*Resident Pulmonologist, Hayatabad medical complex Peshawar, drarifhayat@gmail.com

Abstract

Introduction: A condition known as bronchitis arises when the lungs' bronchialtubes, or airways, become inflamed and produce mucus when coughed. Both acuteand chronic cases of bronchitis are possible (long-term).

Aims/objectives: The main objective of current prospective study in bronchitispatients is to evaluate antibiotics consumption, effectiveness and its escalation withantimicrobial resistance (AMR).

Methodology: Bronchit patient's prospective data were collected during the diseasepeak season (January-March) at Hayatabad Medical Complex, Peshawar, KhyberPakhtunkhwa, Pakistan. Antibiotics consumption was calculated from the patientmedication chart, where hospital -stay/longitivity were evaluated from DOA toDOD.

Results: Highest antibiotics consumption of Piperacillin, Vancomycin, Ampicillinand Cefaperzone + Sulbactam are observed in more than 60% bronchitis in-patients. Similarly, hospital-stay/longitivity from 4-14 days were observed of 10-30% bronchitis in-patients, which is an alarming situation.

Conclusion: This condition is most likely a viral infection so antibioticsconsumption should be discouraged as it is not effective in this case and it also leads to adverse reactions and AMR.

Key words: Bronchitis, Antibiotics, ADRs, AMR

INTRODUCTION

A condition termed bronchitis arises when the lungs' bronchial tubes, or airways, become inflamed and produce mucus when coughed. Both acute and chronic cases of bronchitis are possible (long-term) [1].

According to a well-known study of 1,000 adult bronchitic patients conducted in London between 1951 and 1953, the condition mostly started in the third decade and gradually increased in the fifth and sixth decades, mostly among smoking males from lower socioeconomic levels. Forty years later, a review of 471 individuals in the United Epidemiologic surveys, for example following myocardial infarction and lung cancer in the United Kingdom in the 1980s, this disease and its exacerbations

among adult men ranked third in terms of mortality (WHO Statistics Annual, 1983), with the majority of victims being from lower socioeconomic levels. In social classes 3, 4, and 5, male death rates in the 1970s were 33/100,000, 97,115, and 191/100,000, respectively. The entire cost of prescription drugs in the UK has surpassed £50 million in recent years, while the annual cost to Canadians is more over $33 million [4].The most common sign of acute bronchitis is cough. Cough is more prevalent than sputum, which is typically clear and colorless. Important diagnostic criteria include the lack of consolidation signs on a chest X-ray and the preponderance of small airway infection. Treatment for acute bronchitis is primarily symptomatic and frequently results in spontaneous regression. Acute infectious causes such pneumonia, bronchiolitis, upper respiratory tract infections, and exacerbations of chronic lung illnesses like COPD, asthma, and bronchiectasis should be taken into account in the differential diagnosis [6]. Within this context the use of antibiotics to treat acute bronchitis is controversial but common. Concerns that prescribing unnecessary antibiotics increases antibiotic resistance exists [8]. The use of antibiotics for patients with acute bronchial infections remains a controversial area in primary health care practice. Therefore, some authors have called for physicians to stop prescribing antibiotics for patients with acute bronchitis. Antibiotics may improve outcomes in acute bronchitis if the disease is caused by a bacterial infection. They have no antiviral activity so are not effective in viral bronchitis. In addition, antibiotics can cause harm relating to their adverse effect on normal bacteria colonising the intestine [9]. viruses, and antibiotics are not indicated in patients without chronic lung disease. Acute bronchitis and the common cold are self-limited illnesses that do not require antibiotic treatment. Supportive care and symptom management are the mainstay of treatment for acute bronchitis. The role of antibiotics is limited. Since 2005, the National Committee for Quality Assurance has recommended avoidance of antibiotic prescribing for acute bronchitis as a Healthcare Effectiveness Data and Information Set Measure. All major guidelines on bronchitis, including those from the American College of Chest Physicians, recommend against using antibiotics for acute bronchitis unless the patient has a known pertussis infection.The American Academy of Pediatrics recommends that antibiotics not be used for apparent viral respiratory illnesses, including sinusitis, pharyngitis, and bronchitis. Despite these recommendations, antibiotics are often prescribed for acute bronchitis [10].

METHODOLOGY

Study Design and Setting

The current study was conducted in Pulmonology ward at Hayatabad Medical Complex (HMC), Peshawar, Khyber Pakhtunkhwa.

Study Period

The current clinical report is based on a concurrent study, conducted during 1st jan to 28 feb, 2023.

Data Collection

Data collection to view the therapeutic agent used for bronchitis patients was done by reviewing the patients' medical records. Data included information on age, sex, dates of admission and discharge, medical history, presentation of signs and symptoms and initial categorization of bronchitis (acute and chronic) and the types of therapy used for the treatment and management of bronchitis during the hospital stay.Results and Shaheed Benazir Bhutto University Sheringal recommended proforma for data collection.

Table: 1 Demographic data of the patients

Patient name	Gender	Age	Ward	Admission date	Address	Profession	LOE	MS

* LOE: Level of education, M.S: Marital status

1. C/C:
2. FAMILY STATUS

In this portion the family history of the patients noted.

3. SOCIAL STATUS
4. LABORATORY DATA

Biochemical tests	Observed range	Standard range

5. Dx;
6. Prescribe medications;
7. Self-medication:

Dosage form	Trade name	Generic name	Dose	Frequency	Cost of the product	Others
Homeopathic or other products						

Inclusion criteria

The patients of all ages having myocardial infraction disease and stayed for more than one day in the hospital ward, were included in the study. The patients having complete medical records, and actively participated in the study were included in the study.

Exclusion criteria

* The patients expired during hospital stay.
* Those patients' prescription who has inadequate data
* Those patients who are not willingly interested to participate in research
* Those patients who left ward before completion of therapy.

Data analysis

The analysis and evaluation of collected data was done to find out medication management, antibiotic resistance and treatment strategies for bronchitis through Microsoft Office Excel Worksheet. The drugs prescribed at hospital setting were analyzed for the indicated clinical conditions and clinical outcomes.

RESULTS AND DISCUSSION

Dosage form wise distribution:

Patients prescribed with medication mostly include injectables, followed by nebulizers, among other medications as shown in the given figure (4.1).

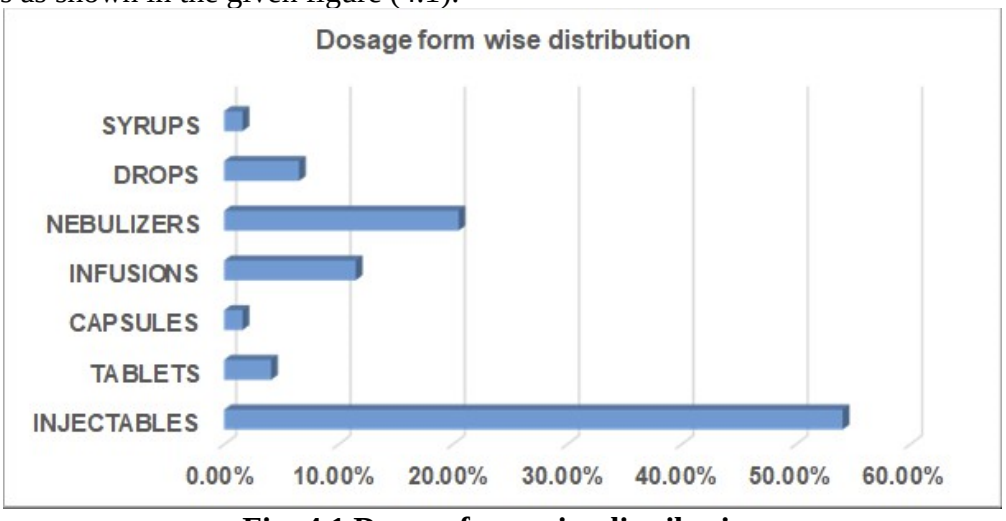

Fig: 4.1 Dosage form wise distribution

Gender wise distribution:

The data collected, shows that the male individuals are more susciptibe to bronchontis as compared to the female individuals, as shown in the figure (1).

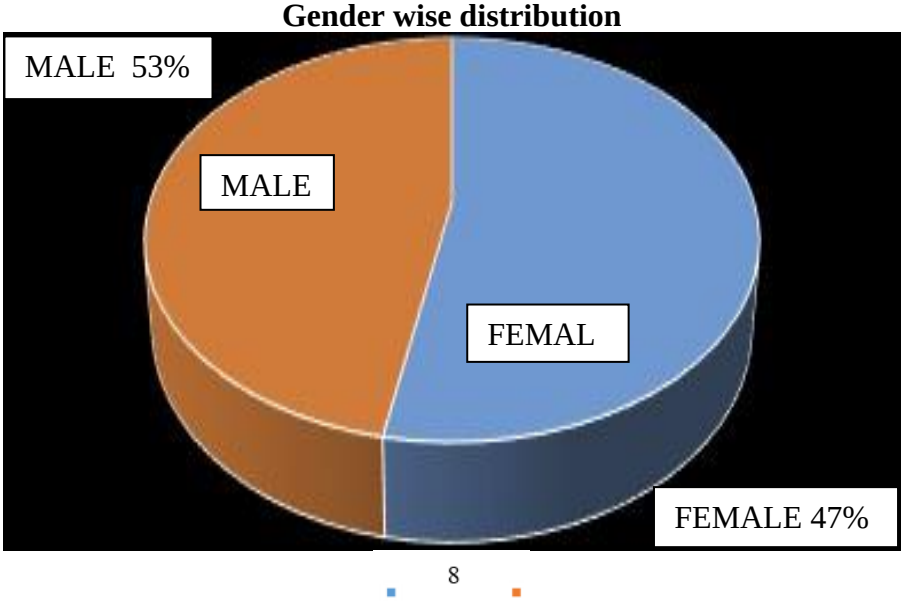

Fig: 4.1 Gender wise distribution

Area wise distribution:
Cases reported from different areas included Peshawar (15), Landikotal (6), Shabqadar (4), Dalazak road (3), Nasir bagh road and Charsadda two each. Peshawar represented the most number of patients among other districts.

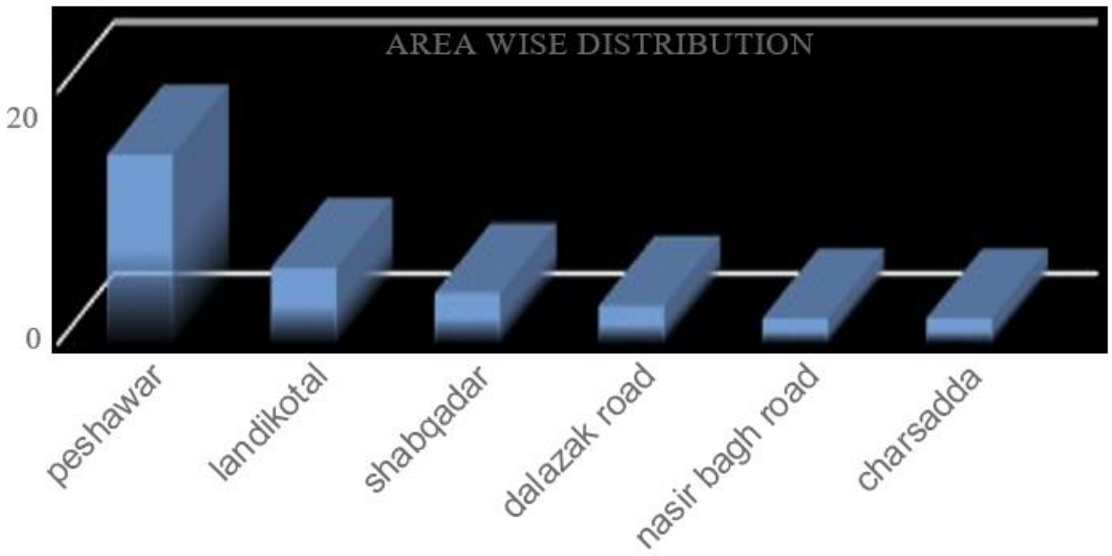

Fig 2 Area wise distribution

Types wise distribution:
Among the two common types of bronchitis, the acute bronchitis was more common in patients than chronic bronchitis, as shown in fig 3 below.

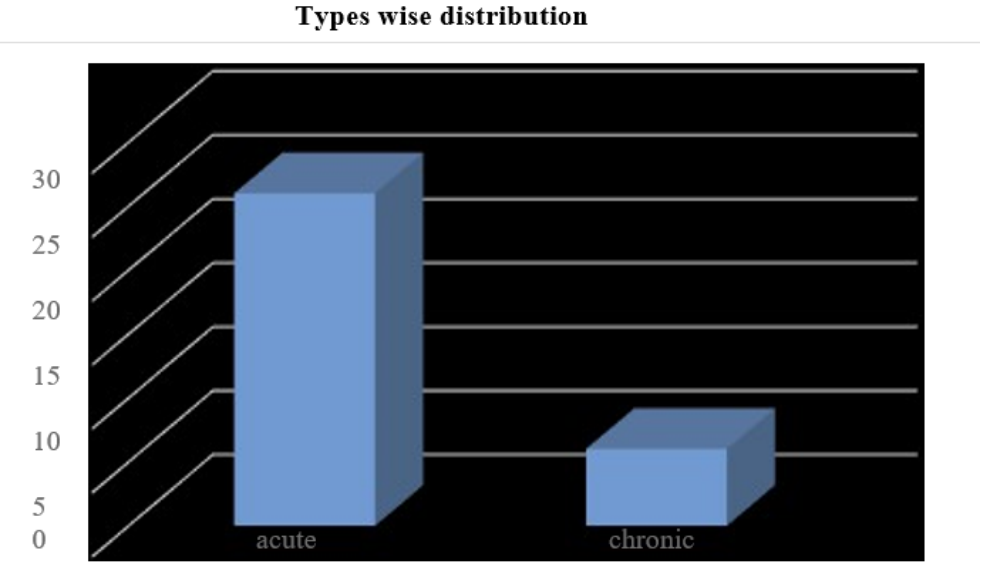

Fig: 3 type wise distribution

Drug doses (mg):
The number of cases reported mostly included children and infants, that is why the numbers of injectables were more than other dosage forms. The medications along with the dose have been mentioned in table 4.

Table: 4 Drug dose

Drugs	Doses
Piperacillin+sulbactam (tabac)	4.5 gm
Cefaperazone (cebac)	1 gm
Dexamethason (decodran)	10 mg
Vancomycin	500 mg
Ondansetron (ONSET)	2 gm
Omeprazole (risek)	40 mg
Ampicillin	500 mg

Drugs ADRs:
Drugs with possible adverse drug reactions and their side effects are listed in table 5. The number of antibiotics are more in causing the ADRs.

Table: 5 Drugs ADRs

Drugs (brand names)	ADRs
Piperacillin+sulbactam (tabac)	Itching and hives
Cefaperazone (cebac)	Gums bleeding and confusion
Dexamethason (decodran)	Headache,depression, heart burn
Vancomycin	Nephrotoxicity
Ondansetron (ONSET)	Constipation, fanting
Omeprazole (risek)	Stomach cramp, bloated feeling
Ampicillin	Diahrrea, rash, dizziness

DISCUSSION:
There are mixed results across studies with some suggesting marginal benefits for antibiotics, though these are of doubtful clinical significance. However, the inclusion of the largest multi-centre study of the effectiveness of antibiotics in patients with lower respiratory tract infections strengthens the evidence and also highlights a statistically significant increase in adverse events in the

antibiotic-treated groups. However, it is possible that older patients with multimorbidities may not have been recruited to trials so the evidence guiding decision making in this group of patients is less certain. In general, the available evidence suggests we should not be using antibiotics to treat acute bronchitis or lower respiratory tract infections when pneumonia is not expected. There is a modest benefit from antibiotics for some outcomes but these are of minimal clinical significance. Any benefit is even less apparent in the sensitivity analysis, which included data from subgroups of patients with productive cough of short duration (two to four days) in conjunction with the common cold. Of the two trials in the primary analysis that limited enrolment to patients who had been ill for less than one week, one did not show any benefit from antibiotics, whilst the other showed modest benefit with antibiotic. It is possible that the overall benefit noted from antibiotics resulted from the inclusion in some trials of patients who may have had pneumonia instead of acute bronchitis [11].Keeping in view the above study and result, the same results were seen in the study, which included thirty two patients. In which male patients were more than females. One hundred and twenty two medications were prescribed, among which sixty six were antibiotics. But no evedent benefits were resulted from antibiotics being used. Only few worked in the symptomatic relief, which was belived that the patients might had pneumonia. In a nutshell, acute bronchitis shouldn't be treated with antibiotics, only if, the patient is not reported with pneumonia.

CONCLUSION:

We should not be using antibiotics to treat acute bronchitis or lower respiratory tract infections, when pneumonia or other bacterial infections are not expected. Antibiotics might offer benefits, but with increased risk of adverse reactions. And in long term, antibiotics use might also result in bacterial resistance to it.

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