CODEN [USA]: IAJPBB ISSN: 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES

http://doi.org/10.5072/zenodo.291639

Available online at: http://www.iajps.com Research Article

FREQUENCY OF DRUG RESISTNCE OF BACTERIA IN THE INFECCTION OF LOWER RESPIRATORY TRACT

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Article Received: March 2019 **Accepted:** April 2019 **Published:** May 2019

Abstract:

Objective: *Infection of bacteria is very significant reason to make the violent condition of COPD (Chronic Obstructive Pulmonary Disease). The resistance to antibiotic have raised in the main causative agents of the diseases. The aim of this study is to interrogate the prevalence of antibiotic resistance among the isolates of bacteria in the infection of lower respiratory tract.*

Methodology: *This was a transverse research work conducted in Allied Hospital Faisalabad. We gathered the protected samples of brush from the lower tract of respiration with the help of bronchoscopy in the admitted & ambulatory fifty-four chronic obstructive pulmonary disease patients with adverse state. Broth micro-dilution test was in use for the determination six anti-microbial agents isolated in vitro condition.*

Results: *Among the isolates of s. pneumonia, 5.90% & 94.10% were moderate and severe grade resistant to penicillin & ampicillin correspondingly. Total 58.80% isolates were available with the resistance to erythromycin. The isolates of H. influenza were showing the hundred percent resistance to penicillin & ampicillin.*

Conclusion: *The part of antibiotics is very important in the treatment of chronic obstructive pulmonary diseases signifying that every attempt should be in action to protect the antibiotic's sensitivity with appropriate and timely use of these antibiotic.*

KEYWORDS: *Lower Respiratory Tract, Isolates, Resistance, Penicillin, Influenza, Sensitivity, Appropriate, Chronic, Bronchoscopy, Broth, Obstructive.*

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Please cite this article in press Rida Shahzad et al., ***Frequency Of Drug Resistnce Of Bacteria In The Infecction Of Lower Respiratory Tract.,*** *Indo Am. J. P. Sci, 2019; 06(05).*

INTRODUCTION:

COPD is very serious complication of the lungs with an association with smoking [1-3]. Patients suffering from bronchitis are highly vulnerable to this complication. Hypersecretion of the mucus, which is the foundation of the bronchitis, has a special association with the rate of mortality due to the reason of this infection [4]. There is mutual arrangement that species of bacteria very frequently isolated from sputum & lower tract of respiration in the duration of worse condition of chronic obstructive pulmonary disease are non-tippable H. influenza, streptococcus pneumonia & Moraxella catarrhalis [5, 6]. In current era, we see a severe increase in the resistance to antibiotics among the diseases causing organisms in the respiration system.

Before the 1987 less than one percent of pneumococci in the United States of America elaborated the very high grade resistance to the penicillin [7]. This resistance continued to be increase and it reached 43.80% total resistance to penicillin in the year of 1997 [8]. The patients suffering from COPD are commonly subject to the various regimens of the treatments with the help of microbes. It is very hard to take decision that whether the characteristics of the patients or danger of resistance to antibiotics should have influence selection empiric treatment through antibiotic. This research work carried out to interrogate the rate of the species of bacteria showing resistance to antibiotics isolated from the lower tract of respiration with the utilization of method of bronchoscopy.

METHODOLOGY:

This was a transverse research work. This research work carried out in Allied Hospital Faisalabad in the year of 2018. We gathered the protected samples of brush from the lower tract of respiration with the help of bronchoscopy in both hospitalized & ambulatory fifty-four patients. The causative agents gathered by this current research work were s. pneumonia, H. influenza, and Moraxella catarrhalis. In the absence of oxygen vulnerability testing carried out with the help of method of micro-dilution in accordance with the instructions of NCCLS (National Committee for Clinical

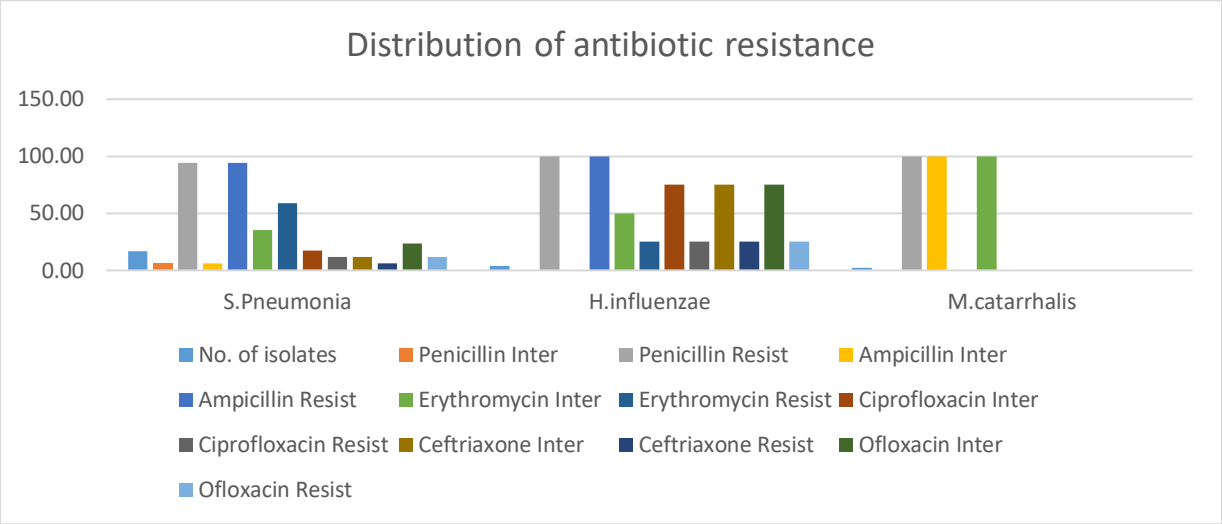
Laboratory Standards) [9]. The determination of the 6 antimicrobial medicines penicillin, erythromycin, ofloxacin, ampicillin, ciprofloxacin & ceftriaxone carried out with the utilization of standard micro-dilution procedure in 0.10 milliliter volumes of Cation adjusted Muller Hinton broth with five percent lysed blood of horse. The inoculation of micro dilution plate with the help of disposable inoculator so the end inoculum was 5-10 cfu/ml, and its incubation carried out at thirty-seven degrees centigrade for complete twenty hours [10]. The ethical board of the hospital gave the permission to conduct this research work, every patient gave his verbal consent to participate in the research work. For the assessment of the factors like gender and age of the patients suffering from pneumonia due to bacteria, we collected this information at the enrolment time of the patient in this research work. T test & Chi square tests were in action for the evaluation of the factors.

RESULTS:

The findings of this research work displayed that there was positive culture for 40.0% (n: 23) isolates. There was no important disparity between findings of the positive culture in the variables of gender and age as mentioned in Table-1.

Table-I: Distribution of Antibiotic Resistance Among Bacteria Isolates of LRTIs

Pathogens		S.Pneumonia	H.influenzae	M.catarrhalis
No. of isolates		17.00	4.0	2.0
Penicillin	Inter	5.90	0.0	0.0
	Resist	94.10	100.0	100.0
Ampicillin	Inter	5.90	0.0	100.0
	Resist	94.10	100.0	0.0
Erythromycin	Inter	35.30	50.0	100.0
	Resist	58.80	25.0	0.0
Ciprofloxacin	Inter	17.60	75.0	0.0
	Resist	11.80	25.0	0.0
Ceftriaxone	Inter	11.80	75.0	0.0
	Resist	5.90	25.0	0.0
Ofloxacin	Inter	23.50	75.0	0.0
	Resist	11.80	25.0	0.0



Among the isolates of s. pneumonia, 5.90% & 94.10% were moderate and severe grade resistant to penicillin & ampicillin correspondingly. Total 58.80% isolates were available with the resistance to erythromycin. The isolates of H. influenza were showing the hundred percent resistance to penicillin & ampicillin.

DISCUSSION:

In current research work, we utilized the bronchoscopy methods to prevent the nasopharyngeal infection expectorated sputum. Information of this research showed that 60.0% patients were not positive for the cultures of bacteria. We believe that major reasons for such complications are viruses and unusual pathogens. Our collected information of current research work discovered that high rate of the pneumococcal penicillin & ampicillin opposition. The research work of ANSORP in1998 stated that resistance of penicillin in the population of Korea were present eighty isolates. Resistance to pneumococcal antibiotic Nagasaki was also very severe just like Korea [11]. In country of France, the occurrence of resistance to penicillin for s. pneumonia was 53.30% in the evaluated isolates in the year of 1992. In the same year, low resistance of 7.20% was available in Germany [12]. In accordance with the collected information of current research work, the rate of occurrence of erythromycin in the s. pneumonia was available in 75.0% isolates & for ciprofloxacin in 29.40% of isolates. The concluded frequencies of the resistance to erythromycin in the hemisphere of West was very high in France with 58.10%, in Spain as 57.10% & in some parts of USA as 47.0%. The research works conducted in Hong Kong & Taiwan displayed that from 80.0% to 91.0% of the isolates of pneumococcal were available with resistance to erythromycin [13, 14].

This current research work discovered that resistance to penicillin and ampicillin was hundred percent for H. influenza & M. catarrhalis. In 2 research works the production of beta lactamase was present in 33.40% of H. influenza and 95.0% of M. catarrhalis [15, 16]. The investigators from Hong Kong described the high frequencies of resistance in the isolates of s. pneumonia to different fluoroquinolones [14]. Currently, there is high attention to reduced vulnerability of S. pneumonia, perhaps showing the high utilization of this category of antibody. The utilization of antibiotics in animal farming & agriculture field is also the contributory factor for this complication. Risk aspects for different resistances to various drugs S. pneumonia comprises peruse of antibiotic, at the height of age & hospitalization.

Very high rates of greater than fifteen percent of production of B-lactamase were available in United Kingdom, Spain, Belgium & France [12, 16]. Total 92.20% of three hundred and seventy-one isolates of M. catarrhalis gathered in Europe in the year of 1998 created the B- lactamase [12]. In accordance with the collected data of this research work, the occurrence of erythromycin resistant H. influenza is 50.0% isolates while the isolates gathered in France displayed the same rate of occurrence [12]. Erythromycin resistance has an association with the resistance to penicillin [17]. Our current work displayed no resistance to fluoroquinolones for the M. catarrhalis isolates. Resistance to fluoroquinolone was available in United Kingdom, France & Spain [12, 18].

The disparities in the occurrence of resistances to antimicrobial in various countries are because of many factors. Various patterns of the utilization of antimicrobial which is the cause of the variable

pressure on opposition may be the one main factor [19]. Some other factors may be specific serotypes distributions and increase of the clones of resistant inside various areas. The infections of the respiratory tract are very frequent signs for prescription of the antibiotic, responsible for sixty percent of all scripts in the United Kingdom. In Europe, antibiotics are in use for the treatment of greater than eighty percent of the lower respiratory tract infections are [19]. The system of health care in the whole world are trying to decrease expenses and at same time for the improvement of the quality care.

CONCLUSION:

The role of antibiotics is very important in the treatment of the lower respiratory tract infection. Regular studies for the resistance of drugs are the suggestion of this research work to determine the resistance to drug and provision of guidelines in the utilization of proper antibiotics.

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