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Original Research Paper

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SPUTUM CULTURE REPORTS: IS IT WORTH TO WAIT BEFORE EMPIRICAL ANTIBIOTICS IN COMMUNITY ACQUIRED PNEUMONIA ?

Dr. Deepak Kumar — Senior resident at department of Medicine, Atal Bihari Vajpayee government medical college, Vidisha (Madhya Pradesh).

Dr. Dharmendra Kumar Mekle* — Assistant professor at department of Medicine, Atal Bihari Vajpayee government medical college, Vidisha (Madhya Pradesh). *Corresponding Author

ABSTRACT

BACKGROUND:-Community Acquired Pneumonia is a clinical condition having a large variety of etiology with respect to Microbial Agents and treatment modalities varies in accordance with type of Organism involved. Also a crude idea can be taken with patient's age, associated co-morbidities and local pattern of microbial data obtained from small sized studies done at various parts of country.The aim of this study is to assess the importance of sputum culture in Community Acquired Pneumonia.

AIMS &OBJECTIVES :-

1. 1. To study the importance of sputum culture reports in community acquired pneumonia.
2. To document the clinical profile of Community AcquiredPneumonia of indoor patients.
3. To document the sputum culture reports of patients.

METHODOLOGY:-We studied sixty patients with clinical diagnosis of Community acquired pneumonia and sent there sputum culture reports to know the culprit organism. We excluded patients with hospital acquired pneumonia and HIV positive patients. Data was assembled in a master chart and analyzed with SPSS 16 software. **RESULTS:-** Most of the patients were in elderly age group. Most of them had co- morbidities like COAD, smoking and diabetes. 25 patients had developed complications out of 60. Mortality was 10. Sputum culture positivity was 40%. **CONCLUSION:-** Initial clinical evaluation of patients is still the basis of initiation of empirical antibiotics specially at peripheral health care system. Sputum culture is a time consuming procedure also it is not 100% reliable as culture positivity rate is between 40 to70 per cent in worldwide studies.

KEYWORDS : Community Acquired Pneumonia, COAD.

INTRODUCTION

Lower respiratory tract infections are one of the important cause of mortality responsible for around 20% of deaths/year[1]. Study of bacteriology has given different patterns of results in various countries and in different times in past few decades. After study of world literature on these studies only 40 to 70% cases could give positive results on bacteriological findings.[1] despite availability of potent and new antibiotics as compared to pre antibiotic era we saw considerable morbidity and mortality due to community acquired pneumonia in Indian scenario. In the United States, community acquired pneumonia is the sixth important cause of fatality from infectious diseases.[2,3].

Estimates about mortality in community acquired pneumonia are based on crude data on random studies in different countries as pneumonia is not a notifiable disease. However about 4 million cases of community-acquired pneumonia are reported every year and approximately 20% of these needs hospitalization. The death rate of pneumonia among patients who require admissions to ICU approaches 25%.[4-7]. In past few decades the epidemiology and management of pneumonia has undergone changes. Two most important factors which determine the etiologic agent and initial treatment policy are clinical presentation and presence of co-morbid conditions like chronic obstructive airway diseases, smoking, obesity, alcoholism, cardiac/renal/hepatic diseases and diabetes mellitus etc. severity of pneumonia and presence of a specific co morbidity can give a clue about most probable pathogen and rational use of antibiotic.

Indoor air pollution and prevalence of COAD are the 2 main risk factors high burden of the disease in India [8,9]. The cause of community acquired pneumonia is often difficult to establish despite the progress made in the diagnosis of pneumonia, it takes time to know the culprit microorganism in the blood or sputum sample, still the etiology remains unknown in about 50% patients. To make therapeutic decisions a clinician needs a reliable data on the relative prevalence of different etiological agents in that area.[10]

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MATERIALS AND METHODS :A hospital based observational study was carried out on 60 cases with clinical diagnosis of community acquired pneumonia at department of medicine at RIMS Ranchi from October 2015 to October 2016. All patients were subjected for a detailed history and clinical examination and sputum sample were taken with standard protocols. All efforts were made to obtain sputum within 24 hr of admission prior to administration of antibiotics. In patients who could not expectorate, induced sputum was taken after nebulisation with 3% hypertonic saline. After collection of sputum it was immediately sent to microbiology department for routine examination and culture reports. Informed consent was obtained from all patients. Inclusion criteria :patients presenting with atleast two of the given symptoms like cough, fever, chest pain and breathlessness. Exclusion criteria. Patients with hospital acquired pneumonia and HIV positive patients. The cytological screening was performed on sputum as a prerequisite for acceptability for culture.[10]. The sputum smple first screened by ZN staining and and negative samples were put on culture on blood agar/ MacConkey media. Growth observed after 24 hours and gram staining done on positive culture plates. Bacteria were classified as gram positive and gram negative then specific tests were applied to know the species of bacteria. All data was assembled in master chart in excel sheet and analysis was done with help of SPSS 16 software.

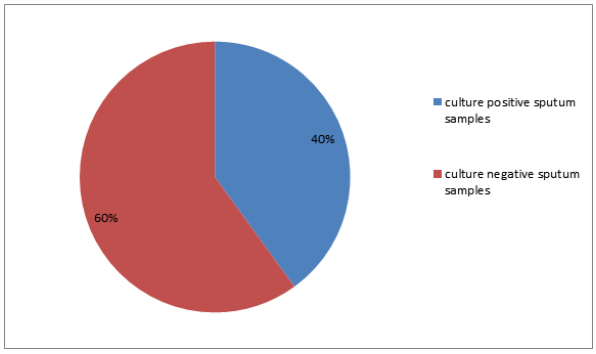
OBSERVATION AND RESULTS :

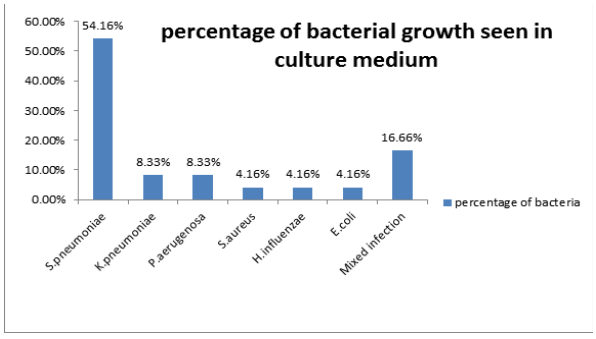
CLINICAL CHARACTERISTICS OF STUDY POPULATION : most of the cases (43) (n=60)were in age group between 49 to

60 years. Male female ratio was 2:1. 65% of population belonged to rural area of residence and 63% were of tribal origin. Among presenting complaints fever and cough were most common in 90% and 100% respectively followed by dyspnea (58%) and chest pain in 6%. The distribution of predisposing factors showed that smoking (40%) ,COPD (36%) were more commonly associated with elderly people. Cardiovascular disorders and alcoholism were noted in 16.66% and 11.66% of patients respectively. On clinical examination tachypnea (100%) and tachycardia (51.6%) were most common findings. Leukocytosis (78.3%) and abnormal kidney function (10%) were next common findings. other abnormalities reported were cyanosis (8.35%), deranged liver function (8.3%) ,hypotension (11.6%) and altered mental status (3.3%). Total mortality was 10.

Now coming to complications which were seen in study population.shock was most prevalent and was seen in 11.6% of cases followed by acute respiratory distress syndrome and pleural effusion seen equally in 6.6% each. Total 25%f patients developed complications.

Out of 60 patients, a total of 24 patient's sputum revealed positive results i.e only 40% was the sputum positivity percentage.





DISCUSSION:

After observation of Clinical characteristic it is obvious that elderly patients (>49years) were more in number (male>female). The reason behind it may be more prevalence of predisposing factors in this age group , advanced age and probably male preponderance for seeking medical attention in Indian population. Tachypnea and tachycardia are significant markers of both morbidity and mortality in community acquired pneumonia. Development of any complication like shock, ARDS, pleural effusion along with pneumonitis brings deterioration in patient's clinical condition and is a poor prognostic sign. A high Mortality of 10 patients (16.66%) may be due to advanced age, associated co-morbidities and complications which developed in about 25% of cases. In our study, etiology could be seen in only 24 cases (40%). Such low rate of sputum culture reports may be due to either hidden/unknown history of antibiotic intake given by local practitioner or due to non availability of serological tests for infections due to atypical organisms like mycoplasma, chlamydia, legionella and viral infections causing pneumonia. Our results correlates with study by Arjun Shenoi, Raghuram pusukura et al sept 2015 in which S.pneumoniae was detected in 56% of patients, P.aerugenosa in 11.1%, E.coli in 5% patients. Complications developed in 26.70% patients. In another study by Tip Yin,August 2004 sputum positivity was 35% and 87% of patients suffered from concomitant diseases. Mortality within 30days of admission was 9 .4%.

CONCLUSSION:

Since community acquired pneumonia is still a big challenge to healthcare system especially in developing countries where health care system is still in growing phase and illiteracy, malnutrition and negligence towards health from patient's side are still challenging aspects. A thorough clinical history and examination is still the primary clue for early diagnosis and management. Many peripheral health care facilities and small sized health care providers/clinics lack radiological and sputum culture facilities. Sputum culture reports has not been fruitful in all cases as per experience of previous studies, Hence use of empirical antibiotics depending on clinical characteristics ,predisposing factors and local data of prevalence of microbes should be used as early as possible to avoid delay in treatment. Thus morbidity and mortality can be controlled to some extent.

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