Section: Medicine

Original Research Article

CLINICAL STUDY OF PNEUMONIA WITH SPECIAL REFERENCE TO MYCOBACTERIUM TUBERCULOSIS

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ABSTRAC

Background: Pneumonia and tuberculosis have been plaguing the citizens of the world for centuries causing millions of deaths. This occurred until the creation and use of antibiotics became more widely available. These two respiratory infections have many differences, which include their aetiology, incidence and prevalence, and many similarities in their objective and subject indicators, medical interventions, course, rehabilitation and effects. **Objective:** To study the aetiology of pneumonia and to study the clinical feature to discriminate between tuberculosis and non-tuberculous community-acquired pneumonia.

Materials and Methods: This cross-sectional, prospective, and observational study was conducted in a Tertiary Care Teaching Hospital in 150 patients admitted to medicine, and medical intensive care unit patients showing clinical, laboratory, or radiological signs of pneumonia.

Results: Among all cases of community-acquired pneumonia, Streptococcus pneumonia was most common with 24 % (36/150). We found the 15-30-year age group had most no. of pneumonia, 33.33%. Tubercular pneumonia cases were more in the 31-45-year age group having one-third patients. male gender (57.33 %) have more community-acquired pneumonia. Community-acquired pneumonia was more common in the urban population. Smoking was the most common addiction associated with pneumonia. Alcoholic patients were 29.33 %. TB pneumonia was also more common in alcoholics (41.47 % vs 26.98 %). p-value was 0.147.

Conclusion: although pulmonary tuberculosis is regarded as a chronic disease, it can present as acute pneumonia. Differentiation of tuberculous from non-tuberculous community-acquired pneumonia is an important challenge in endemic areas of TB like India. Regarding the fact that M. tuberculosis was the etiologic agent responsible for 16% of our acutely presented CAP patients, it is essential to emphasize that the diagnosis of TB should be considered in all patients who presented with CAP in our region.

Keywords: Pulmonary Tuberculosis, Pneumonia with Special Reference to Mycobacterium Tuberculosis

INTRODUCTION

Community-acquired pneumonia (CAP) is defined as an acute infection of the pulmonary parenchyma in a patient who has acquired the infection in the community.[1]

CAP is a common and potentially serious illness. It is associated with considerable morbidity and mortality, particularly in older adult patients and those with significant comorbidities.[2]

It is most common infectious diseases in humans, is usually caused by Streptococcus pneumoniae, Haemophilus influenzae, Klebsiella pneumoniae or atypical pathogens.[3,4]

However, Mycobacterium tuberculosis is a common pathogen of CAP in tuberculosis (TB) or human

immunodeficiency virus (HIV) prevalent areas. Among CAP patients, early recognition of pulmonary TB is challenging in acute-care settings, as CAP is diagnosed exclusively using clinical and radiographic findings.[5]

Tuberculosis (TB) is the seventh leading cause of death in the world, and among infectious diseases, it is second only to HIV. Pulmonary TB classically presents as chronic pneumonia with 4 weeks between symptom onset and the first health consultation. It may also present acutely, in which case it is essentially identical to the presentation of a patient with community-acquired pneumonia.[6]

India has the maximum burden of tuberculosis in the world which accounts for 1/5th of the world population.[7] Mycobacterium tuberculosis is also believed to be an important cause of pneumonia, but there are surprisingly little data.

Among CAP patients, early recognition of pulmonary TB is challenging in acute-care settings, as CAP is diagnosed exclusively using clinical and radiographic findings.

Furthermore, delayed recognition and inadequate isolation of patients with TB can lead to the transmission of M. tuberculosis to other patients, family members and health care personnel.[8]

For this institutional adherence to international standards of TB control is important. Alas, there is evidence that institutions often lack infection control strategies and adequate environmental measures to prevent the transmission of TB. It remains the clinician's responsibility to make sure that patients suspected of having TB which presents as pneumonia undergo respiratory isolation.[8]

In this study, we focus on the cases of pneumonia having tuberculosis as compared to the other causes of pneumonia so that we can early diagnose and isolate tuberculosis patients and start AKT and reduce transmission to the family members and healthcare workers.

MATERIALS AND METHODS

This cross-sectional, prospective, and observational study was conducted in a Tertiary Care Teaching Hospital in 150 patients admitted to medicine, and medical intensive care unit patients showing clinical, laboratory, or radiological sign of pneumonia.

Sampling unit: All patients the clinical or radiological suspicion of pneumonia fulfilling the eligibility criteria.

Inclusion Criteria

- Patients aged more than 12 years.
- Patients having clinical suspicions of pneumonia: a cough, fever, loss of weight, haemoptysis, difficulty in breathing and other constitutional symptoms.
- Patients having radiological suspicions pneumonia: Combinations of infiltrates, cavities and fibrotic areas, Cavities, Pneumothorax, infiltrates, pleural effusion with infiltrations, consolidation.

Exclusion Criteria

- Patients less than 12 years of age
- Patients already on anti-tuberculosis treatment at the time of initial presentation or previous history of AKT.

Method of data collection

150 cases of pneumonia, which fulfilled all the inclusion criteria, were enrolled, written informed consent was taken. A detailed history was taken regarding their complaints, duration, significant past history, drug history, immunocompromised status followed by a detailed clinical examination. All the entries regarding history and clinical examination were entered in the proforma prepared to suit the clinical details important to our study protocol.

A thorough history was taken from the enrolled patients regarding the presence of fever, cough, sputum production and followed by a detailed clinical examination. Complete hemogram, liver function and renal function tests, serological tests and chest x-ray was done in all patients. ABG analysis of each patient was sent.

Sputum collection was done at the time of admission prior to antibiotic administration in as many cases as possible. In patients who could not expectorate sputum spontaneously, sputum induction was done by nebulisation with 3% hypertonic saline, which irritates the tracheobronchial tree and produces bronchorrhoea. This was subjected to Gram smear and culture, AFB smear and BACTEC culture. This also was subjected to AFB and Gram smear examination followed by bacterial and MTB BACTEC culture. Gene Xpert of each patient was sent.

Demographic features of the study group

This included the basic information like Age, gender, residence was collected through the proforma.

Symptomatology

Clinical presentation of all patients was collected using the clinical proforma. Common symptoms of pneumonia and tuberculosis are included.

Data evaluated for the number of patients presenting with such symptoms and expressed as the percentage of patients

Examination Findings

A thorough clinical examination was performed and the findings were documented in the case proforma. Special attention was given to clinical features indicating pulmonary tuberculosis:

Adventitious breath sounds (rales/crackles, rhonchi, wheeze)

Decreased intensity of breath sounds

- Egophony
- Whispering pectoriloquy
- Dullness to percussion
- Tracheal deviation

- Lymphadenopathy
- Pleural friction rub
- Bradycardia
- Oral examination to look for oral candidiasis
- Decreased gag reflex to see risk of aspiration

Microbiology:

Sputum gram stain:

Expectorated sputum samples were collected before administering antibiotics. Nasotracheal suctioned sputum samples were collected from the patients who could not expectorate due to altered mental status. The Gram stain was performed and interpreted by trained microbiologists as soon as possible after the sputum samples were obtained.

Sputum samples were considered of good quality if they had <10 squamous epithelial cells (SECs) per low-power field (LPF) and >10 polymorphonuclear leukocytes (PMNs) per oil immersion field (OIF). Other samples were excluded from the evaluation. In good quality samples, >10 microorganisms of the same morphotype at OIF were considered as meaningful. The presence of many morphologic microorganisms in which a predominant morphotype was not identified was considered as polymicrobial flora.

The primary outcome was how many patients were diagnosed with tubercular and non-tubercular pneumonia and no. indoor days in the hospital. Mortality of patients assessed.

RESULTS

Pneumoniae was the most common cause of pneumonia among study samples 36 (24%) followed by M tuberculosis 24(16%), 25 (16.67%) subjects did not show organisms in the collected sample. K Pneumoniae, MRSA (Methicillin-resistant Staphylococcus aureus) and H. Influenza were also significantly found as the cause of pneumonia among study samples.

Normal commensals 11 (7.33 %), Pseudomonas 5 (3.33%)and candida 3 (2%) were present in fewer cases.

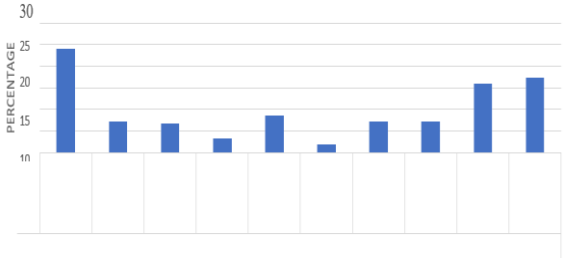

Figure 1: Distribution of Pathogen of Pneumonia by Percentage

	S. PNEUMON IAE	H. INFLUENZA E	KLEBSHIELL A PNEUMON IAE	PSEUDOM ONAS AERUGINO SA	MRSA	CANDIDA	NORMAL COMMENS ALS	H1N1	MYCOBAC TERIUM TUBERCUL OSIS	NO GROWTH
%	24	7.33	6.67	3.33	8.67	2	7.33	7.33	16	17.33

With non-TB pneumonia having maximum cases 44 (34.92%) between 12-30 yrs. age group, while TB pneumonia having maximum 8 (33.33 %) cases in 31-45 yrs. age group. Elderly population > 60 yrs. of age is showing no significant risk of TB pneumonia as compared to other causes of pneumonia.

Table 1: Distribution of Pathogen of Pneumonia by Age

Age (years)	Tuberculosis Pneumonia	Non-Tuberculosis Pneumonia
Mean	43.29	41.30
Std. Error of Mean	3.013	1.404
Std. Deviation	14.76	15.76

Mean age of M tuberculosis pneumonia subjects was higher than non-tuberculosis pneumonia subjects (43.29 & 41.30 years respectively). The difference was statistically not significant (p = 0.568).

There were 14 (58.33%) males & 10 (41.67%) females in M Tuberculosis pneumonia study samples, while they were 72 (52.94%) males & 54 (42.85 %) females in non-tuberculosis pneumonia study samples. This data shows more no. of more cases of pneumonia in male as compared to female. But this is not significant statically.

In both groups no. of patients in the urban area are more affected by pneumonia. Non-TB pneumonia is much more common in urban populations as compared to rural 77 (61.10%) vs 49 (38.90%).

Table 2: Addiction

Addiction	TB pneumonia N-24 (%)	Non-TB pneumonia N-126 (%)	P-value
Smoking	11(45.83%)	27 (21.43%)	0.11753
Alcoholic	10 (41.47%)	34 (26.98%)	0.1476

There were 11 (45.83%) smokers in M tuberculosis pneumonia group & 27 (21.43%) smokers in non-Tuberculosis pneumonia study samples. The chi-square statistic is 6.3478. The p-value is .011753. This result is significant.

While there were 10 (41.47%) alcoholic in M tuberculosis pneumonia group & 34 (26.98%) alcoholic in non- tuberculosis pneumonia samples. The chi-square statistic is 2.0966. The p-value is .147626. This result is not significant at $p < .05$.

There were 4 (16.67%) subjects in M tuberculosis pneumonia group having the history of contact & 5 (3.96%) subjects in non-Tuberculosis pneumonia having the history of contact. The chi-square statistic is 5.7638. The p-value is .016359. This result is significant at $p < .05$.

Table 3: Comorbid Condition

COMORBID CONDITIONS	TB pneumonia N-24 (%)	Non-TB pneumonia N-126 (%)	P-value
DM	2 (8.33%)	11 (8.73%)	0.949
HEART DISEASE	3 (12.5%)	10 (7.94%)	0.466
PULMONARY DISEASE	4 (16.67%)	23 (18.25%)	0.368
HIV	6 (25%)	10 (7.64%)	.0130

Here we can see the no. of patients having HIV are having significantly higher chances of having TB pneumonia as compared to other causes of pneumonia 25% vs 7.64 %. Other conditions like diabetes mellitus, heart diseases and pulmonary diseases are seen in both groups with no statistical significance.

Table 4: Duration of symptoms

Duration of onset of symptoms	TB pneumonia N-24 (%)	Non-TB pneumonia N-126 (%)	P-value
<3 days	0 (0 %)	12 (9.52 %)	0.797
4-7 days	8 (33.33%)	48 (38.10%)	
8- 12 days	12 (50%)	49 (38.89%)	
>12 days	4 (16.67%)	17 (13.49%)	

Duration of symptoms in TB and non-TB pneumonia is maximum between 4-12 days. While most of the TB pneumonia cases were having symptoms more than 7 days.

Mean duration of symptoms of M. tuberculosis pneumonia subjects was higher than non-tuberculosis pneumonia subjects (9.21 & 8.06 days respectively). The difference was statistically not significant ($p = 0.171$).

Table 5: Symptomatology

SYMPTOMATOLOGY	TB pneumonia N-24 (%)	Non-TB pneumonia N-126 (%)	P-value
FEVER	21 (87.5%)	123 (97.62%)	0.0204
COUGH	23 (95.83%)	120 (95.23%)	0.899
SPUTUM	19 (79.17%)	101 (80.16%)	0.911
DYSPNOEA	11 (45.83%)	95 (75.40%)	0.003
NIGHT SWEATS	10 (41.67%)	32 (25.40%)	0.103
WEIGHT LOSS	14 (58.33%)	15 (11.90%)	0.043
HEMOPTYSIS	4 (16.67%)	10 (7.94%)	0.177

Clinically fever is a common symptom over all. In TB pneumonia 21(87.50 %) vs 123 (97.62%) in non-TB pneumonia cases. Fever is followed by cough as second most common symptom 23 (95.83%) in TB vs 120 (95.23%), followed by sputum [19 (79.17%) & 101 (80.16%) respectively] and dyspnoea 11 [(45.83%) & 95 (75.40%) respectively p value=0.0035] . Night sweats, weight loss and haemoptysis are much more common in TB pneumonia cases [10 (41.67%),14 (58.33%) and 4 (16.67%) respectively]. p value for difference in weight in both groups <0.05 which is significant.

Table 6: Clinical signs

Signs	TB pneumonia N-24 (%)	Non-TB pneumonia N-126 (%)	P-value
Systolic BP <90 mmHg	1 (4.67)	9 (7.14)	1
HR more or equal to 125/ min	0 (0)	9 (7.14)	NA
RR more or equal to 30/ min	2 (8.33)	21 (16.67)	0.3729
Altered sensorium	2 (8.33)	15 (11.90)	0.613

Heart rate was >125/ min in 9 patients in non-TB pneumonia, and there was none in the TB group. Respiratory rate was also high in non-TB group 21(16.67%) as compared to 2 (8.33%) in TB pneumonia. Both groups had no statistical difference in their clinical signs characteristics (p-value >0.005).

Mean heart rate & respiratory rate of M tuberculosis pneumonia subjects was less than non-tuberculosis pneumonia subjects. Mean systolic & diastolic blood pressure of M tuberculosis pneumonia subjects was higher than non-tuberculosis pneumonia subjects. The difference was statistically not significant (p >0.05).

The mortality rate in the hospital due do TB pneumonia was higher in (16.67) than non-Tuberculosis pneumonia (8.79%) among study subjects. (p-value=0.234).

DISCUSSION

The most common aetiology CAP was S. pneumoniae which were 36/150 (24%), which was followed by tuberculosis as second most common 24/150 (16%). Other common organisms which were found were H. influenzae 11/150(7.33%) Klebsiella pneumonia 10/150 (6.67%), MRSA 13/150(8.67%), normal commensals were 11/150 (7.33%). H1N1 pneumonia detected by PCR was found in 11/150 cases (7.33 %). The less common organisms found were Pseudomonas aeruginosa 5/150 (3.33%) and candida 3/150 (2 %).

One other observation which was seen that second most no of patients 26/150 (17.33%) had no growth on sputum culture. Indian studies showed sputum culture positivity in 10-33% of patients.[9,10,11]

Blood cultures are valuable when positive but negative results are more common even with severe pneumonia.[10] Positive results were observed in only 10-24% of patients with pneumonia.[12]

Interestingly, AFB positivity was observed in our study in 24 cases (16%) out of the initial group of 150 patients. This study indicates that there is a high prevalence of infectious pulmonary TB in adult hospitalized CAP patients in Indian settings.

In a study conducted at Ludhiana by Gursimrat and Aggarwal regarding,[14,15] bacteriological aetiology in CAP, they found out AFB positivity in 5% of cases. Also, a similar study was done in Japan by Ishida et al,[13] regarding the aetiology of community-acquired pneumonia in hospitalized patients which was a three-year prospective study. This study also showed AFB positivity in 5.5% of the total study group.

A study done by Azeer A. et al. found that Tuberculosis is the commonest cause of pneumonia requiring hospitalization during Hajj.

As per our observation of high incidence of pulmonary TB among CAP suspects, it's high time to strongly re-think the CAP guidelines which are currently followed, at least in the Indian scenario with a bulk of Tuberculosis patients presenting as CAP patients.

15-30 years age group is having the majority of cases of pneumonia 50/150 (33.33%). Having maximum no. of cases of non-TB pneumonia 44/126 (34.92%). The second most common age group affected by pneumonia is 31-45 years 41/150(27.33%), followed by 46-60 years age group 36/150 (24%) having 25% in TB pneumonia and 23.80% of non-TB pneumonia (36/150).

Elderly population (>60 years) consists of 23/150 (15.33%) overall with more cases 16.67 % in TB pneumonia and 15.07% in non-TB pneumonia.

This shows that more no. of cases of non- TB pneumonia is in younger age i.e. 12-30 yrs. as compared to TB pneumonia which is explained by the fact that tuberculosis is a chronic disease and immunity is better in the younger population.

31-60 yrs. age groups have an almost identical distribution of cases in both groups which was also shown in various studies.

Median age of TB pneumonia and non-TB pneumonia were 43.29 years and 41.30 years respectively. The difference was statistically not significant (p = 0.568).

A study done by Malik and khan in Pakistan found that there were 18 (11.25%) from <20 years, 68 (42.5%) from 20 to 40 years, 58 (36.25%) from 41 to 60 years while 16 (10%) from >60 years. Patients from 20-40 years of age were more frequent as compared to others. Similar result was found in our study.[16]

Demographically, there were no significant differences between the two groups in terms of age. This result to similar study conducted in korea.[17]

In this study, the incidence of CAP was more common in male (57.33%) as compared to females (42.66%). But this is not significant statistically.

TB pneumonia has male 14/24 (58.33%) and female 10/24 (41.67%).

Similarly, non-TB pneumonia has 72/126 (57.15%) male and 54/126 (42.85%) female cases.

This shows that there are more male affected by pneumonia. But, the no gender difference in cases of TB and non-TB pneumonia.

Men were more likely to be hospitalized with CAP, more likely to receive intensive care or life support, which is found in various studies.[115] Khan and malik(16) found that there were 88 (55%) males and 72 (45%) female with males being significantly more frequent. We found the male predominance but results were not significant in our study. High frequency of CAP among male gender as depicted in our study has been further supported by the other medical scientists who mentioned the same findings.

Urban residents are more affected by pneumonia in our study with 90/150(60%).

This same trend continues when we compare TB pneumonia as compared to non-TB pneumonia. As TB cases have 13/24 (54.17%) urban residents Vs 11/24 (45.83%). In Non-TB pneumonia 49 (38.90%)

were living in rural while 77 (61.10%) living in urban areas.

This result has the p-value of 0.524 which was not significant.

Similar results were found in other studies by Lave JR and Fine MJ.[18] Khan and Malik's study revealed that there were 56.25% patients from the rural area. This difference is due to their own explanation that rural patients were treated by qualified family physicians in their study.

Smoking was the most common addiction associated with pneumonia, which is a known fact. We had 38/150 cases which make 25.33% having an addiction to smoking.

Out of these 11/24 (45.83%)cases had TB pneumonia vs 27/126 (21.43%) cases of non-TB pneumonia. This shows the close association of smoking as an important risk

factor for tuberculosis in the community. a p-value of 0.11753 (<0.05) shows the statically significance. A positive relationship with pack-years was observed, with those smoking more than 15 pack-years having the highest risk.[19] Similar finding was found in the recent study on CAP in Georgia.[20]

Other common addiction alcohol shows no significant difference in both groups. In this group also, there are more percent of cases addicted to alcohol 10 (41.47%) vs 34 (26.98%) alcoholic in non-tuberculosis pneumonia samples. The chi-square statistic is 2.0966. The p-value is .147626. This result is not significant at $p < .05$.

No. of patients who are having the history of contact with a case of tuberculosis patient is seen more in TB pneumonia cases. 4/24(16.67%) in the TB group and 5/126 (3.96%) in other cases. This result was significant with a p-value of 0.0163.

People nearby may breathe in these bacteria and become infected.

A history of respiratory disease was associated with an increased risk of CAP. A history of pneumonia increased the risk of a subsequent episode. Patients with chronic respiratory diseases, including COPD, bronchitis or asthma, had a twofold to fourfold increase in the risk of CAP. Additional data also support this association. One study reported an adjusted OR of 2.47 (2.37 to 2.58) for chronic respiratory disease,[21] and another study reported adjusted RRs of 2.82 (2.45 to 3.24) for COPD and 1.58 (1.44 to 1.74) for asthma.[22] Patients with at least one respiratory tract infection in the past year were also at increased risk of CAP. In young adults, the risk of CAP increased in line with the number of infections over the previous 6 years.(23)

Data from several studies suggested that diabetes mellitus was associated with a moderate increase in the risk of CAP.(23)

Madhu SB et al found the most common risk factor identified was smoking (26.6%), followed by chronic alcoholism (23%), COPD (14%) and Diabetes Mellitus (13.7%). This is no different from the identified risk factors in India and the west.

There was no case of tuberculosis pneumonia seen with an onset of symptoms <3 days while there were 12/126 (9.52%) cases of non-TB pneumonia. most of the symptoms started between 8-12 days in both groups, 12/24 (50%) in TB and 49/126 (38.89%) in the non-TB group. 8/24 (33.33%) case having tuberculosis pneumonia have the onset of symptoms between 4-7 days, while 48/126(38.10%) cases of non-TB pneumonia have the same range of duration of onset.

More of TB pneumonia 4/24 (16.67%) vs 17 (13.49%) have the onset of symptoms which was more than 12 days. We found most of the TB pneumonia cases were having symptoms more than 7 days.

Mean of onset of symptoms in both ages was 9.21 and 8.06 in TB and non-TB-pneumonia cases respectively. This result has a p-value of 0.171 which was not significant.

S-B. Chon found in their study that the median duration of these symptoms was longer in the TB than in the non-TB group (11 days, IQR 7-30 vs. 5 days).

We found from table no.10 that fever is the most common symptom of pneumonia which was seen in 96 % of the case (144/150). A cough was closely followed present in 143/150 cases making 95.33 %.

Sputum production was found in 80% cases (120/150). Dyspnoea (70.66%), night sweats (28%), weight loss (19.33%) and haemoptysis (9.33%) were other common symptoms found in CAP.

While fever was most common in non-tubercular pneumonia with 97.62 % cases as compared to 87.5 % case in tubercular pneumonia. this was significant with a p-value of 0.0204. this is also seen in other studies that fever is less common in cases of CAP in non-tubercular origin.

Cough was seen in 95.83 % cases in the tubercular group vs 95.23 % in other groups which shows that it is equally common in both group and not a differentiating feature.

Dyspnoea is quite common in non-TB pneumonia, with 74.40 % (95/126). This is less common in the TB group 45.83 % (11/26). On applying an unpaired chi-square test we found a p-value of 0.003, which was significant.

Night sweats were common in tuberculosis with 41.67 % having this feature as compared to 25.40 % cases in non-tuberculosis. Night sweats are the cardinal feature of tuberculosis but in our study, we found the p-value of 0.103 which is not significant. So, night sweats are common in tuberculosis but this does not rule out other possibilities of pneumonia, according to our study.

Weight loss is again more common in the tubercular group. 14/24 (58.33 %) cases complaint of this in patients which later found to have tubercular pneumonia. While in 15/126 (11.90%) cases in non-tubercular pneumonia have weight loss. On applying

unpaired t-test p-value was 0.043. Which shows weight loss is an important feature of tuberculosis.

Haemoptysis is the more common symptom of tubercular pneumonia with 4/24 (16.67%) as compared to 10/126 (7.94%). In hemoptysis, the blood generally arises from this bronchial circulation, except when pulmonary arteries are damaged by trauma, by erosion of a granulomatous or calcified lymph node or a tumor, or, rarely, by pulmonary arterial catheterization or when pulmonary capillaries are affected by inflammation.

Non-tubercular pneumonia has more patients having systolic BP < 90 mmHg 7.14% (9/126), while there were 4.67 % (1/24) in the tubercular pneumonia group. The results were not significant sarcastically.

There was no patient who was having heart rate >125/ min in TB pneumonia in our study. 9/126 (7.14%) patients with pneumonia due to other causes have HR>125/min. As there were zero patients in the TB group, the chi-square test is not applicable. This shows that in non-tubercular pneumonia is of more progressive nature.

There are more no. of patients with non-tubercular pneumonia who are having the more respiratory rate of 30/ min i.e. 16.67 % (21/126). In tubercular pneumonia, only 2/24 (8.33%) patients have RR>125/ min. this again explains the less aggressive nature of tubercular pneumonia. by comparing both groups, the p-value was not significant.

Shortness of breath was found to be associated with non-tuberculosis diagnoses and considered a negative predictor in the study done by Rakoczy KS el at.[24]

Other important criteria which were included in the study was altered sensorium. Patients with altered mentation were 15/126 (11.90%) in non-tubercular pneumonia, while TB pneumonia cases have 2/24 (8.33), the p-value was 0.613.the more no. of patient's non-tubercular pneumonia is due to more rapid multiorgan involvement and damage to oxygen exchange in alveoli.

In our study, we did not find any significant clinical signs to distinguish TB pneumonia from others. S-B. Chon el at study also had no significant clinical signs to distinguish two groups.[17] here is the table showing their results:-

There was more mortality seen in the TB pneumonia group as compared to non-TB pneumonia, 4/24 (16.67%) and 11/126 (8.73%). p-value was <0.05, which is statistically not significant. This shows that early diagnosis and suspicion of tuberculosis is important. This is especially essential in endemic areas as India.[25]

CONCLUSION

Although pulmonary tuberculosis is regarded as a chronic disease, it can present as acute pneumonia. Differentiation of tuberculous from non-tuberculous community-acquired pneumonia is an important challenge in endemic areas of TB like India. Regarding the fact that M. tuberculosis was the etiologic agent responsible for 16% of our acutely presented CAP patients, it is essential to emphasize that the diagnosis of TB should be considered in all patients who presented with CAP in our region.

As Mycobacterium tuberculosis was very often isolated from suspected community-acquired pneumonia patients in our study, different diagnostic indices to identify tuberculosis among suspected CAP in relation to the prevalence of tuberculosis seem to be the need of the hour.

The residence, age group, gender and onset of symptoms of community-acquired pneumonia are similar in both TB pneumonia and non-TB pneumonia patients. The clinical presentations of CAP are largely similar in TB-pneumonia and non-TB pneumonia patients; however, some important differences exist. More patients with non-TB pneumonia had fever and dyspnea. As tuberculosis is more of chronic entity weight loss was seen in more no. of patients. There is no significant increase in mortality due to tuberculosis pneumonia as such. Indian and International guidelines of community-acquired recommend sputum AFB smear examination after a course of antibiotics or in cases of non-resolving pneumonia. These guidelines should be modified according to present scenario, facilitate screening for Pulmonary TB among adult hospitalized community-acquired patients. This will help in early diagnosis and isolation of tubercular cases with others and decrease chances of spread of disease to other community members. With the application of these, we can also decrease resistance to drugs.

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