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# Clinical and bacteriological profile of Community Acquired Pneumonia cases: A cross sectional study from Kalaburagi, Karnataka

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**Abstract**

**Introduction:** Estimates of the incidence of CAP range from 4 to 5 million cases per annually, which is about 20% of these require hospitalization. But the problem is much greater in developing countries where the pneumonia is the most common cause of hospital attendance in adults[1] CAP in adults has a morbidity and mortality ranging between 10% and 25%[2,3]. Pneumonia is more common in immune compromised like Diabetes, HIV and patient with chronic lung disease. **Objective:** To study the clinical presentation of community acquired pneumonia in adults. **Material and methods:** The present study was conducted at KHAJA BANDA NAWAZ TEACHING AND GENERAL HOSPITAL, KALABURAGI between January 2018 to July 2019, all 100 cases of community acquired pneumonia in adults were included in the study. **Results:** Out of 65 male patients CAP was more common among age group 51-60 yrs (27.69%). Most common risk factor is smoking (40%), diabetes (27%) COPD (23%). Most common symptom on presentation was fever (92%), cough (91%). Only 7 patients had tuberculosis with secondary bacterial infection, out of which sputum AFB was positive in only 4 patients and 3 more patients were diagnosed based on sputum CBNAAT.

**Conclusion:** Patients with CAP were more frequently above 50 years of age (54%). Most common age interval was 51-60 years that is 27% followed by 61 -70 that was 21%. CAP

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was more common in males. Smoking was most commonly detected risk factor. klebsiella and streptococci and were most commonly seen organism in CAP.

***Key words: Community acquired pneumonia, adults, clinical profile***

**Introduction**

In 1901, Willum Osler described pneumonia as, "Captain of the men of death". Community acquired pneumonia (CAP) is a common illness all over the world. It is a major cause of death among all age groups[1]. Estimates of the incidence of CAP range from 4 to 5 million cases per annually, which is about 20% of these require hospitalization. But the problem is much greater in developing countries where the pneumonia is the most common cause of hospital attendance in adults[1] CAP in adults has a morbidity and mortality ranging between 10% and 25%[2,3]. Pneumonia is more common in immune compromised like Diabetes, HIV and patient with chronic lung disease.

The relative frequency of etiological agents varies among different geographical regions[2,4]. The aging population, the increased prevalence of co-morbid illness, HIV infection and increasing microbial resistance have all probably contributed to the persistence of the high mortality rate, despite advances in medical care[5].

In India, the situation is not different from the rest of the world. No proper field surveys have been conducted in India so far to generate concrete data for epidemiology of CAP. In most rural and semi urban health facilities, radiographs are not routinely advised in outpatients and hence, pneumonia is not diagnosed. The diagnosis most often entered in records is respiratory infection, lower respiratory tract infection, bronchitis and others. Antibiotics are usually started based on history, without any investigation, and only those cases who do not improve, reach a bigger hospital and get chest X-ray done and are diagnosed. In addition to contributing to diagnosis, chest X-ray allows us to assess the extent of the lesions and detect

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complications, as well as facilitating differential diagnosis[6] Additionally, facilities to perform culture tests and study the resistance pattern of certain organisms are available only in some laboratories, while serological tests are not available in most places. Even though guidelines are available, only some physicians practice them. In selecting tests to be performed, one should take into account patient age, presence of comorbidities, disease severity, and prior anti-infective therapy.[7]

**OBJECTIVE:** To study the clinical presentation of community acquired pneumonia in adults

**Material and methods**

**Source of Data:** The present study was conducted at KHAJA BANDA NAWAZ TEACHING AND GENERAL HOSPITAL, KALABURAGI between January 2018 to July 2019, all cases of community acquired pneumonia in adults was included in the study. The patients were selected randomly irrespective of sex.

**Type of Study:** Prospective study

**Study period:** From January 2018 to July 2019

**Sample size:** All cases of community acquired pneumonia attending Khaja Banda Nawaz teaching and general hospital, Kalaburagi between January 2018 to July 2019.

A detailed clinical history was taken; examination was done. Radiological evaluation was done. Sputum was collected for microbial studies, before starting empirical antibiotic therapy. The antibiotic was subsequently changed, when necessary, based on clinical response and culture reports.

**Inclusion criteria:**

1. Clinical symptoms like fever, cough with or without expectoration, pleuritic chest pain, dyspnoea and altered sensorium.

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2. Clinical Signs like tachypnea, reduced chest movements, dull percussion note, bronchial breath sounds, increased vocal fremitus and vocal resonance and crepitations.

**Exclusion criteria:**

1. Hospital acquired pneumonia
2. HIV positive status
3. Lung malignancies

**Results**

**Table 1: Age and gender wise prevalence of CAP**

| AGE (IN YEARS) | MALE (total=65) | | FEMALE (total=35) | |
|---|---|---|---|---|
| | NO OF PTS | PERCENTAGE | NO OF PTS | PERCENTAGE |
| 21-30 | 8 | 12.3% | 4 | 11.42% |
| 31-40 | 6 | 9.2% | 9 | 25.71% |
| 41-50 | 12 | 18.46% | 7 | 20% |
| 51-60 | 18 | 27.69% | 9 | 25.71% |
| 61-70 | 15 | 23.07% | 6 | 17.14% |
| 71-80 | 6 | 9.23% | - | - |
| total | 65 | 65% | 35 | 35% |
| Mean ± SD | 52.8± 15.3 | | 46.4± 13.7 | |

Out of 65 male patients CAP was more common among age group 51-60 yrs (27.69%) followed by 61-70 years (23.07%) Out of 35 female patients most common age group was 31-40 and 51-60 years (25.71%). The mean age group in male and female was 52.8± 15.3 and

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46.4± 13.7 respectively.

**Table 2: Risk factors in study population**

| Risk factors | No of patients (n) | Percentage (%) |
|---|---|---|
| Smoking | 40 | 40% |
| COPD | 23 | 23% |
| Diabetes | 27 | 27% |
| Alcohol | 11 | 11% |

In our study, most common risk factor was smoking (40%), diabetes (27%) COPD (23%) followed by alcohol (11%). In 6% patients 4 risk factors were found, in 9% patients 3 risk factors and in 7% patients 2 risk factors were found.

**Table 3: Symptoms in the Study Population**

| Symptom | No of patients(n) | Percentage (%) |
|---|---|---|
| Fever | 92 | 92% |
| Cough | 91 | 91% |
| Expectoration | 85 | 85% |
| Pleuritic pain | 19 | 19% |
| Dyspnoea | 48 | 48% |
| Hemoptysis | 3 | 3% |
| Altered sensorium | 5 | 5% |

In the present study most common symptom on presentation was fever (92%), cough (91%), expectoration (85%) followed by dyspnoea (48%), chest pain (19%) altered sensorium (5%) and hemoptysis (3%).

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**Table 4: Bacteriological distribution in study population with tuberculosis**

| BACTERIA | CASES | |
|---|---|---|
| | Number of patients | Percentage |
| Klebsiella | 2 | 28.57% |
| Streptococcus | 4 | 57.1% |
| E coli | 1 | 14.2% |

In our study, out of 100 patients only 7 patients had Tuberculosis was with secondary bacterial infection, out of which sputum AFB was positive in only 4 patients and 3 more patients were diagnosed based on sputum CBNAAT. Sputum culture was positive in 7 patients out of which two patients had Klebsiella, four patients had Streptococcus and one had E coli.

**Table 5: Culture Organisms in the Study Population**

| CULTURE ORGANISM | NO OF PATIENTS(n) | PERCENTAGE (%) |
|---|---|---|
| Klebsiella | 23 | 42.59% |
| Streptococcus | 14 | 25.92% |
| Staphylococcus | 6 | 11.11% |
| Cons | 5 | 9.25% |
| Pseudomonas | 4 | 7.40% |
| E. coli | 2 | 3.70% |

In the present study isolation of organism from sputum culture was obtained in 54% of patients, out of which klebsiella was commonest (42.59%) followed by streptococcus (25.9%), staphylococcus (11.11%), CONS (9.2%), pseudomonas (7.4%) and E coli (3.7%)

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**Discussion**

In the present study, the age group of patients ranged from 21 years to 80 years with mean age of 50.58±15.03. Patients with CAP were more frequently above 50 years of age (54%). Most common age interval was 51-60 years that was 27% followed by 61 -70 that was 21%.

This correlates with the study conducted by Sugathan Roshni et al[8] at General Medicine Department, Maharaja's Institute of Medical Sciences, Nellimarla, Vizianagaram, India from October 2014 to September 2016. 60 patients were enrolled into the study with age ranging from 19- 80 years with mean age of 48.27± 13.69 years. In this study, majority of patients with CAP were middle aged and elderly (71% are more than 50 years of age) which was also similar to the studies done by Shrestha R et al[9] (51.3 yrs), Bansal et al[10] (52.7 ± 18.1 yrs) and Shah et al[101] (53.68 ± 14.74 yrs)

The present study comprised of 65 males and 35 females. CAP was more common in males. This agrees with other studies. The male preponderance could be due to the fact that they are more exposed to risk factors like smoking, COPD, alcoholism etc.

The most common risk factor identified was smoking (40%), COPD (23%) and Diabetes mellitus (27%). This was consistent with other studies.

In a study conducted by Shah et al[11] the patient population consisted of 100 patients admitted with the diagnosis was of community-acquired pneumonia (CAP), at the Sher- i-Kashmir institute of Medical Sciences Soura, Srinagar, India. Most common identified risk factor was smoking (65%), COPD (57%), diabetes mellitus (13%), and chronic alcoholism (1%).

In the present study most common symptom on presentation was fever (92%), cough (91%), expectoration (85%) followed by dyspnoea (48%), chest pain (19%) altered sensorium (5%) and hemoptysis (3%).

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Jain et al[12] conducted a study in Gwalior on CAP patients which showed majority of patients were presented with cough 92.5%, fever 90%, dyspnea 59.2% followed by expectoration, chest pain, gastrointestinal symptoms, and altered mental status in 55%,14.2%, 10.9%, and 3.3%, respectively

A study conducted by Bansal et al[10] in Indira Gandhi Medical College and Hospital, Shimla, India on 70 patients of CAP showed most common presenting symptoms as fever (90%), chills (81%), cough (97%) and expectoration (87%). Other symptoms were shortness of breath in (48%), pleuritic chest pain (34%), hemoptysis (14%), altered sensorium (8.5%).

**Conclusion**

Patients with CAP were more frequently above 50 years of age (54%). Most common age interval was 51-60 years that was 27% followed by 61 -70 that was 21%. CAP was more common in males. Smoking was most commonly detected risk factor. Klebsiella and Streptococci were most commonly seen organism in CAP.

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