

Investigation of the prevalence of community-acquired and hospital-acquired pneumonia in patients referred to Sadri Ibn Sina Hospital in 1401

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ABSTRACT

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Introduction: *Pneumonia* is the sixth cause of death and the most common infectious syndrome associated with death. Most cases of *pneumonia* are caused by microorganisms. We evaluated the prevalence and epidemiology of community-acquired *pneumonia* in Sadri Ibn Sina Hospital in 1401.

Materials and Methods: This cross-sectional-descriptive study was conducted from the beginning to the end of 1401 on the files of patients referred to the Chest Department of Ibn Sina Hospital.

Results: 431 patients were examined for the final analysis. This research included 228 men and 203 women. The mean age of the subjects was 59 years. Most of the studied patients were from Kabul Province. Among the subjects studied, were smokers, patients with a history of alcohol consumption, and patients with a history of hospitalization of less than one week.

Conclusion. According to studies, hospital-acquired *pneumonia* is the second most common hospital infection, and it happens abundantly in the intensive care departments. The results of a study in Europe have shown that hospital-acquired *pneumonia* occurs in 47% of all infections in the intensive care unit. In our study, 52.9% of patients had a history of hospitalization for less than one week.

Keywords: *Pneumonia*, Infectious syndrome, Sadri Ibn Sina Hospital

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1. Introduction

Pneumonia is an inflammation of the lung parenchyma. Most cases of *pneumonia* are caused by microorganisms (1). *Pneumonia* is known as the sixth cause of death and the most common infectious syndrome associated with death (2). Currently, the most practical classification for *pneumonia* is community-acquired versus hospital-acquired, because according to clinical experiences, the etiology, approach, evaluation, and treatment of these two types of *pneumonia* are completely different (3).

The most important identifiable microorganisms involved in community-acquired *pneumonia* include *Streptococcus pneumoniae*, *Mycoplasma pneumoniae*, *Haemophilus influenzae*, *Legionella*, *Chlamydia pneumoniae*, *Pneumocystis carinii*, and *Aspergillus* (4). *Mycoplasma pneumoniae*, along with *Chlamydia*, are among the causes of atypical *pneumonia*; most cases of respiratory infections are seen individually or together with family epidemics (5). Community-acquired *pneumonia* has been suggested as a pulmonary infection associated with clinical features of acute infection such as fever, cough, chest pain, and sputum (6).

Pneumonia is the most common cause of death in children around the world, especially in developing countries (7, 8). Published studies on the mortality rate in community-acquired *pneumonia* are between 0.1 and 0.7 per 1000 people, depending on the nationality and population, and increase in the hospital annually (9). From an economic point of view, it has also been shown that community-acquired *pneumonia* contributes to the significant financial burden of healthcare systems and related costs (10). Therefore, it is necessary to evaluate the prevalence and epidemiology of community-acquired *pneumonia* to guide appropriate therapeutic interventions for the prevention and better management of community-acquired

pneumonia (11). Therefore, in this study, we aimed to evaluate the prevalence and epidemiology of community-acquired *pneumonia* in Sadri Ibn Sina Hospital in 1401.

2. Materials and Methods

This cross-sectional-descriptive study was conducted from the beginning to the end of 1401 on the files of patients referred to the Chest Department of Ibn Sina Hospital. During the implementation of the project, 1278 patients were referred to the Chest Department of Ibn Sina Hospital, and after the initial investigations, the diagnosis of *pneumonia* was confirmed in 430 of them. The diagnosis of *pneumonia* was confirmed based on the presence of all three criteria of clinical symptoms, examination signs, and chest x-rays. Patients under 18 years of age, patients with lung cancer, occupational lung diseases, asthma, and pulmonary tuberculosis were excluded from the study.

Age, gender, place of residence, a family history of *pneumonia*, and predisposing factors (smoking, being over 65 years old, drinking alcohol, and history of hospitalization) were investigated. All the information obtained from the review of the summary of the main files of the patients registered by the relevant residents and interns was extracted, and the mentioned specifications were entered into the SPSS software. Qualitative variables were reported by frequency, and percentage, and quantitative variables by mean. To analyze the variables, paired tests, T of two independent samples, and a chi-square test were used. A difference with a value of $p < 0.05$ was considered significant.

3. Results

In this study, 474 patients with *pneumonia* from the community were studied. 26 patients were excluded due to incomplete information, 17 patients due to the wrong diagnosis, and finally, 431 patients were examined for the final analysis. This research included 228 men

(52.9%) and 203 women (47.1%) (Fig. 1). There was no statistically significant difference in the rate of *pneumonia* in terms of gender (P value = 0.2).

The mean age of the subjects was 59 years (range 18 to 95 years). The largest number of studied patients (47.6%) were in the age range above 65 years, and the least number of them were in the age range below 30 years (0.7%) (Fig. 2). Most of the studied patients (26.7%) were from Kabul Province, and the least number of male patients (1.6%) were from Paktia Province (Fig. 3). Among the studied patients (8.8%), they had a family history of *pneumonia* (Fig. 3). Among the subjects studied, 40.4 percent smoked, 6.7% had a history of alcohol consumption, and 52.9 percent had a history of hospitalization for less than one week (Fig. 4).

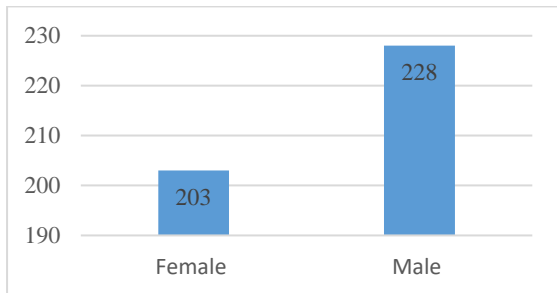


Fig. 1. Frequency distribution of *pneumonia* according to gender.

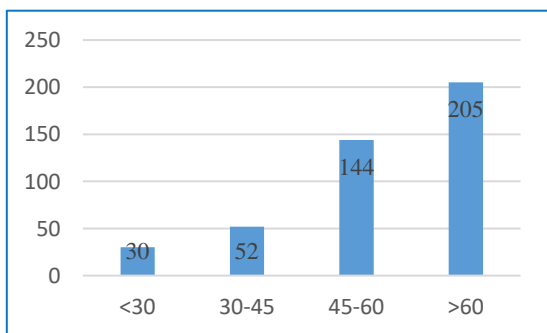


Fig. 2: Age distribution of *pneumonia* in studied subjects.

4. Discussion

Despite the continuous progress in medicine, lower respiratory tract infections, such as

acquired *pneumonia*, are among the most important infectious causes of morbidity and mortality in the world. It is the second-leading cause of death worldwide (12). According to population-based research, the annual prevalence of community-acquired *pneumonia* in the adult population ranges from 6.2 to 4.13 per 1000 people (13).

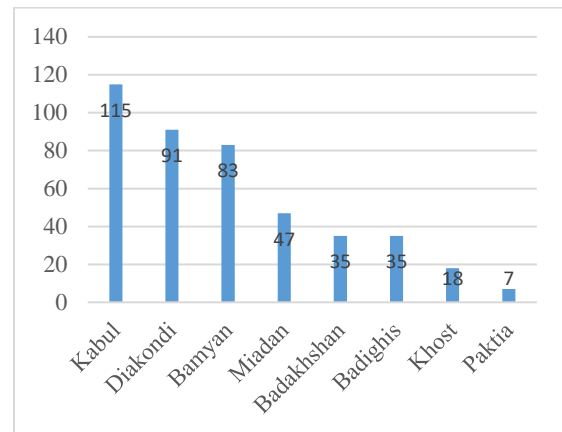


Fig. 3 shows the frequency distribution of *pneumonia* patients by place of residence.

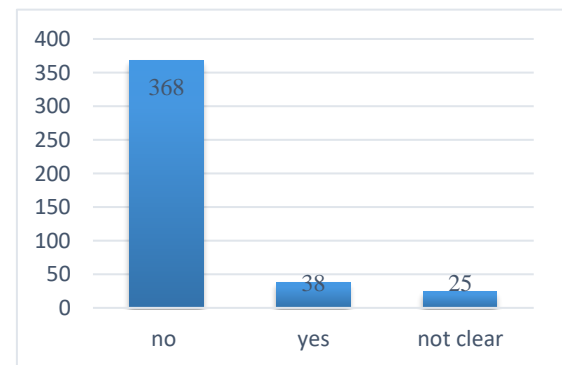


Fig. 4. Frequency distribution of familial *pneumonia* in studied subjects

This disease is the first cause of death among developed countries and the sixth cause of death among advanced countries (14). *Pneumonia* is the most important infection of the lower respiratory tract and is accompanied by symptoms such as fever, cold, breathing problems, cough, and chest pain (15). In this study, we investigated 431 people, including 228 men and 203 women. There was no statistically significant difference in the rate of *pneumonia* in terms of gender (P value = 0.2).

The average age of the subjects was 59 years (range 18 to 95 years). Most of the studied patients (26.7%) were from Kabul province. In terms of symptoms, 40.4% of people smoked, 6.7% of patients had a history of alcohol consumption, and 52.9% of patients had a history of hospitalization in less than one week. Determining the cause of *pneumonia*, despite the progress of laboratory techniques, is still difficult in our country due to the expensive materials and imported laboratory equipment, and even with the use of advanced laboratory methods, only 45 to 70 percent of cases can identify the cause. Therefore, the clinical decision for experimental treatment can affect mortality and cost. Knowing the factors that worsen the prognosis of *pneumonia* is useful in making the right decisions about patients.

Community-acquired *pneumonia* is described as a lung infection associated with clinical features of an acute infection such as fever, cough, chest pain, and sputum (5). The distribution of etiologic causes of community-acquired *pneumonia* helps in choosing appropriate empiric antibiotics. The most important identifiable microorganisms involved in community-acquired *pneumonia* include the following: *Streptococcus pneumoniae*, *Mycoplasma pneumoniae*, *Haemophilus influenzae*, *Legionella*, *Chlamydia pneumoniae*, *Pneumocystis carinii*, and *Aspergillus* (3).

From an economic perspective, community-acquired pneumonia has been shown to contribute to a significant financial burden on healthcare systems and associated costs (10). Community-acquired pneumonia seems to be more common in developing countries than in developed countries (16). Furthermore, in several countries, approximately 50% of hospitalizations for community-acquired pneumonia occur in patients aged 65 years with high mortality (17). In our study, the largest number of studied patients (47.6%) were in the age range of 65 years. According to previous studies, hospital-acquired pneumonia is the

second most common hospital infection (18). And it happens abundantly in the intensive-care departments. The results of a study in Europe have shown that hospital-acquired *pneumonia* occurs in 47% of all infections in the intensive care unit (19). In our study, 52.9% of patients had a history of hospitalization for less than one week.

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Conflict of interest

We declare that we have no conflict of interest.

Data availability statement

The data that support the findings of this study are available from the corresponding author, upon reasonable request.

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