

The most common infections leading to hospitalization in educational –research hospital of Yazd

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Abstract

Infectious diseases are one of the diseases that are generally better suited to diagnostic and antibiotic treatments. However, there is significant mortality in infectious diseases. This study was done to determine the infection leading to admission. This study was performed on hospital data. All patients admitted in Shahid Sadoughi hospital in Yazd province in one year were studied. The final diagnosis is based on symptoms and clinical infectious disease by a specialist. Data were analyzed by statistical software SPSS and Chi-square tests. In the time period examined, 1326 patients were enrolled, 56.7% were male and 43.3% female that age range were 14-95 years. The most commonly reported illness at the time of hospital discharge was pneumonia (16.7%), UTI (11.2%), diabetic foot ulcer and cellulite (13.7%). There was a significant relationship between the most commonly diagnosed illnesses age and gender at the onset and discharge of patients (P value<0.05). It is worth noting that cases without diagnosis were 20.1% and in the elderly group with a population of 53.6% of the total hospitalized patients, pneumonia and UTI were the most common complications. The present study has shown that pneumonia is the most prevalent among the causes of hospitalization among the elderly and non-elderly patients in the infectious part, and there is a significant relationship between age and sex and the prevalence of disease in patients were in Hospital.

Keywords: Infections, Admission, Pneumonia, UTI.

INTRODUCTION

Infectious diseases are among the diseases that are usually cured with appropriate diagnostic measures and antibiotic treatments [1]. However, there is also significant mortality in infectious diseases [2]. On the one hand, this mortality can be due to the acute and urgent nature of infectious diseases, so that the speed of starting treatment plays a decisive role in the prognosis of the disease, and on the other hand, in chronic infectious diseases such as tuberculosis and HIV infection. Mortality can be due to complications from the disease itself or concomitant diseases such as cardiovascular problems [3, 4]. Given that acute or chronic infectious diseases are one of the

main causes of death in patients in hospitals, proper follow-up and treatment of these patients is of particular importance and requires experienced staff and appropriate para-clinical measures [5].

Pneumonia as a clinical syndrome is also one of the ten most common causes of death in people 65 and older and the most common cause of death due to infections [6, 7]. About 10% of patients with pneumonia have severe disease and the mortality of patients is about 28% [7]. Bacterial tuberculosis is also a chronic disease caused by Mycobacterium tuberculosis. Currently, tuberculosis is the deadliest adult microbial disease in the world and is expected to continue until 2020 [8].

Urinary tract infection is also one of the most common bacterial infections that are of the highest importance after respiratory tract infection [9]. In the United States, urinary tract infections cause infections in 7-8 million outpatients and more than one-third of hospital infections per year [10]. Other microorganisms that can be infected include *Proteus mirabilis*, various species of *Klebsiella*, *Enterobacter* and *Pseudomonas* [11].

Skin and soft tissue infections are important causes of outpatient visits to medical clinics or hospitals [12]. These infections have a wide range and can range from a superficial infection that requires time to heal to severe and dangerous cases that lead to death without prompt diagnosis [12]. Research shows that soft tissue infections occur 1.5 times more often in the lower extremities of diabetic patients than in other patients. Infections may cause metabolic disorders, and metabolic disorders may facilitate infection [13]. Immune factors influencing the development of infection in diabetics include neutrophil dysfunction (including endothelial adhesion, chemotaxis, and phagocytosis). Inadequate blood sugar control also increases the prevalence of infections in diabetics [14].

The aim of this study was to investigate the most common infectious agents leading to hospitalization and to identify these factors in order to improve and provide better clinical and paraclinical services to patients. Preventive decisions on infectious diseases were also selected.

MATERIALS AND METHODS

This research was applied and was performed descriptively-analytically on hospital data. The study population in this research were all patients who were hospitalized in the infectious ward of Shahid Sadoughi Hospital in Yazd between October 2017 and September 2018. Sampling in this study was done by census method. In this study, 1326 cases were reviewed.

Demographic and clinical information in the files of patients admitted to the infectious ward of Shahid Sadoughi Hospital were collected for one year and the cases of respiratory, skin, urogenital, gastrointestinal, etc. infections that led to hospitalization were identified and recorded.

This plan was carried out in compliance with all the principles of ethics in research approved by the Ministry of Health and was approved by the University Ethics Committee. In addition, information about patients is completely confidential and is provided to the relevant authorities if needed.

Considering that the study population included all patients admitted to the infectious ward of Shahid Sadoughi Hospital in Yazd, in order to properly study the case information of these patients, including name, surname, age, sex, cause of hospitalization and duration of hospitalization the basis of the physician's diagnosis and the presence of underlying diseases were accurately recorded. Other clinical information related to the individual's disease was also recorded with their consent.

Statistical analysis

Accurate recording of demographic information and related clinical cases in patients admitted to the infectious ward in SPSS software version 21 and chi-square tests were identified as the two most common diseases leading to hospitalization in the subjects.

RESULTS

The mean age of patients in the present study was 52.85 with a standard deviation of 20.75 and a range of changes of 14 to 95 years. Among the patients, 574 (43.3%) were female and 752 (56.7%) were male.

Patients were divided into age groups whose frequency distribution showed that the lowest frequency was related to the age group under 20 years (4.5%). The highest prevalence of infectious diseases was in the 4th (18.6%) and 7th (16.8%) decades and approximately 46.4% of patients were under 50 years old and the rest were over 50 years old.

The most common causes of hospitalization at the time of admission were pneumonia, wound infection and cellulite and urinary tract infections, respectively, which were 15.6%, 12.8%, 10.7% and 4.6%, respectively.

The most common diagnoses at discharge were pneumonia, wound and cellulite infections, urinary tract infections and tuberculosis, respectively, which were 16.7%, 13.7%, 11.2% and 4.8%, respectively.

In the study of common diseases in men and women, urinary tract infections, pneumonia, meningitis, tuberculosis were more common in women and sepsis, upper respiratory tract infections, wound and cellulite infections, hepatitis and brucellosis were more common in men. There was a significant relationship between the types of hospitalization reasons at the time of admission and the sex of the patients.

Pneumonia and urinary tract infections were the most common causes of hospitalization in all age groups except those under 20 years of age. In the 6th and 7th decades, diabetic wound infection and cellulite were more common than pneumonia, but in the 8th and 9th decades, urinary tract infections and pneumonia were more common. A significant relationship was observed between the causes of hospitalization and age groups of patients.

In the study of common diseases in men and women, among the causes of hospitalization at discharge, urinary tract infection, pneumonia and tuberculosis were more common in women and sepsis, upper respiratory tract infections, wound and cellulite infections, hepatitis and brucellosis were more common in men. There was a significant relationship between the types of hospitalization reasons at the time of discharge and the sex of the patients (Table 1).

Table 1: Frequency distribution of the most common diseases based on gender at the time of discharge in the studied patients

Diagnosis	Woman		Man		Total	
	Number	Percent (%)	Number	Percent (%)	Number	Percent (%)
Pneumonia	125	21.8	97	12.9	222	16.7
Wound infection and Cellulitis	65	11.3	117	15.6	182	13.7
Urinary tract infection	82	14.3	66	8.8	148	11.2
Tuberculosis	39	6.8	25	3.3	64	4.8
Brucellosis	22	3.8	29	3.9	51	3.8
Gastroenteritis	21	3.7	21	2.8	42	3.2
Sepsis	15	2.6	27	3.6	42	3.2
Upper respiratory infection	6	1	31	4.1	37	2.8
Meningitis	12	2.1	12	1.6	24	1.8
Hepatitis	2	0.3	9	1.2	11	0.8
Malignancy	5	0.8	11	1.4	16	1.2
Other	79	13.8	141	18.8	220	16.7
No Diagnosis	101	17.6	166	22.1	267	20.1
Total	574	100	752	100	1326	100
p-value	0.001					

In terms of the distribution of disease prevalence in different age groups, office infection was more prevalent in the 6th, 7th, 8th and higher decades. But pneumonia was most prevalent in the 4th decade and has been more common since then at older ages. Hepatitis was also more common in people under the age of 50. Brucellosis was most prevalent in the 4th decade. The highest prevalence of tuberculosis was in the 4th and 5th decades.

DISCUSSION

Infectious diseases are among the diseases that are usually cured with appropriate diagnostic measures and antibiotic treatments [15].

However, there is also significant mortality in infectious diseases. On the one hand, this mortality can be due to the acute and urgent nature of infectious diseases, so that the speed of treatment begins to play a decisive role in the prognosis of the disease, and on the other hand, in chronic infectious diseases such as tuberculosis and HIV infection. Mortality can be due to complications from the disease itself or concomitant diseases such as cardiovascular problems [5].

In the present study, the most common causes of hospitalization upon admission were pneumonia, wound infection and cellulite, and urinary tract infections, respectively. Also in this study and in the study of common diseases in men and women, urinary tract infections, pneumonia, meningitis, tuberculosis were more common in women and sepsis, upper respiratory tract infections, wound and cellulite infections, hepatitis and brucellosis were more common in men. There was a significant relationship between the types of hospitalization reasons at the time of admission and the sex of the patients. In the 6th and 7th decades, diabetic wound infection and cellulite were more common than pneumonia, but in the 8th and 9th decades, urinary tract infections and pneumonia were more common. A significant relationship was observed between the causes of hospitalization and age groups of patients. In 2016, Sadeghi *et al.* In Iran reviewed the files of 201 elderly patients admitted to the infectious ward of Imam Khomeini Hospital in Kermanshah

during 2009-2012, and declared the most common infectious disease to be pneumonia with a frequency of 45%, and the most common complaint of patients was fever (48.8%) reported [16].

During a study in 2011, Ahmadi *et al.* Examined infections leading to hospitalization in both the elderly and non-elderly groups at Razi Hospital in Ahvaz. Tuberculosis was detected in 0.8%. Also, the cases of respiratory tract infections were 2.1%, sepsis was 9.6% and genitourinary tract infections were 0.9%. This study reported an increased risk of infection in the elderly over the age of 60 compared to the elderly, as well as deaths in the elderly, which should be given more attention to the methods of care for such diseases in the elderly [17].

Golsha *et al.* In 2012, during a descriptive-analytical study conducted in Gorgan 5 Azar Hospital in 2009-2010, by referring to the files of elderly patients aged 65 years and older and examining them, it was determined that the deaths (8 cases) without a specific cause and sepsis was the second most common cause of death in these patients [18].

Heravi *et al.* In 2011 to evaluate elderly patients admitted to the infectious ward of Shahid Beheshti Hospital in Kashan, out of 248 patients studied, 133 (53.6%) died, the most common complaints of patients with fever (19.4%) and shortness of breath (14.9%) and the most common underlying disease was hypertension (37%) and the most common infectious disease was pneumonia (23.4%) followed by sepsis (15.7%) [19].

During a study by Hasabi *et al.* In 2007, they investigated the causes of death due to infectious diseases in the infectious ward. During three years, 3976 people were hospitalized in Imam Khomeini Hospital in Tehran. Sepsis was reported in 22% of bacterial pneumonias and 19% of tuberculosis [20].

During a study by Golsha *et al.* In 2005, referring to one-year medical records, they evaluated 122 cases of diabetic patients older than 20 years in 5 Azar Hospital in Gorgan and the reason for hospitalization of 60 people (49.3%) Soft tissue and diabetic foot infections, 36% sepsis, 5.7% pneumonia, 3.2% urinary tract infections and 5.7% were reported to be unknown [21].

CONCLUSION

In the present study, there is a significant relationship between the cases of common diseases in the infectious ward and age and gender at the time of admission and discharge, and the elderly are a group of people in the community who due to physical reasons and living conditions in They are exposed to the above-mentioned common infectious diseases with a higher percentage than young people, and clinical and paraclinical approaches and measures should be considered at the right time and accuracy for both the elderly and non-elderly groups.

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Conflict of Interest

We declare that we have no conflict of interest.

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