Evaluation of Elderly Patients who Applied to the Emergency Department with Chest Pain and Dyspnea

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Abstract

Aim: In parallel with the improvement of living conditions all over the world, the rate of geriatric age group in the population is increasing rapidly. Geriatric patients frequently apply to emergency departments with cardiopulmonary complaints. In this study, it was focused on analyzing the diagnosis distributions of geriatric patients admitted to the emergency department with chest pain and respiratory distress and making a rapid assessment with the right approach.

Methods: This study was performed retrospectively with 2155 patients over 65 years of age who applied to the chest diseases outpatient clinic and emergency room in two centers between 1 January 2017 and 1 January 2019 with respiratory distress and chest pain. In the study, patients who underwent computed thorax tomography and whose cardiac enzyme level was checked were evaluated with physical examination findings, laboratory and radiological findings.

Results: A total of 2155 patients with respiratory distress and chest pain from the geriatric age group were included in the study. 531 patients who had multiple applications due to trauma and with the same complaints were excluded from the study. Respiratory distress and chest pain were detected in 910 (42.24%) of lungs, 655 (30.41%) of cardiac origin and 588 (27.33%) of other 2155 patients. While the most diagnosed pneumonia (39.06%) was diagnosed in patients presenting with pulmonary respiratory distress and chest pain; Acute myocardial infarction was detected in 51.41% of patients with symptoms related to cardiac causes. In addition, 35 previously undiagnosed patients were diagnosed as primary extrapulmonary cancer with lung-pleural metastasis.

Conclusion: We believe that patient evaluations to be made by knowing the etiology of respiratory distress and chest pain will increase the success of the treatment. Considering that the number of geriatric patients admitted to the emergency department is increasing day by day, the fact that emergency personnel have more information about geriatrics is an important factor that will increase the success rates of emergency treatment.

Keywords: Chest Pain, Dyspnea, Emergency Service, Geriatrics

Introduction

Aging is a normal process and is defined as the irreversible loss of individuals’ physiological and spiritual powers. These are all irreversible, structural and functional changes that occur with the progression of time at the level of the organism's molecular cell, tissue, organ and systems. In the reports published by the World Health Organization...
(WHO) about old age and the beginning of old age in our country is stated as 65 years [1]. The World Health Organization has defined the period of psychogeriatric aging as 65 years old and older, 85 years old and older [2].

In parallel with the improvement of living conditions in all societies worldwide, the proportion of geriatric age group in the population is increasing rapidly [3, 4]. The geriatric patient group represents a special patient group for the emergency room physicians because of the higher application rates to the emergency departments, the longer stay times in the emergency department and the higher rates of ambulance use. Inappropriate initial diagnosis and treatment in elderly patients with acute dyspnea and chest pain is associated with a marked increase in morbidity and mortality. Many studies supporting this suggest that prognosis improves with correct early diagnosis and treatment [5, 6].

Geriatric patients frequently apply to emergency departments with cardiopulmonary complaints. Chest pain and shortness of breath each constitute 11% of the main complaints [7]. In the elderly using 112 emergency health services, the first five diseases are as follows; hypertension, lung diseases, cardiological diseases, upper respiratory tract diseases and urinary tract diseases have been found [3]. In addition to cardiological, neurological and respiratory causes, there are applications with abdominal pain, dizziness and general indulgence. The rates of getting geriatric patients in intensive care, using emergency health services, having comorbid diseases and using diagnostic methods (laboratory, imaging etc.) at a high rate are higher than the young population [7].

Dyspnea; It is seen in -37% of patients over the age of 40 and -37% of patients over the age of 70 [8]. Differential diagnosis of cardiac and pulmonary causes of dyspnea should be made in patients presenting to the emergency department with respiratory distress. Acute myocardial infarction, congestive heart failure, acute coronary syndrome and pericardial effusion-tamponade are the most common cardiac causes; chronic obstructive pulmonary disease, asthma, pneumonia, pulmonary embolism, pleural effusion, and pneumothorax are among the common causes of lung origin [9]. Dyspnea; Although it is one of the common symptoms in emergency departments, it is a big problem to distinguish between cardiac and non-cardiac causes [10]. Diagnostic methods applied to investigate the cause of dyspnea; history, physical examination, chest x-ray, electrocardiogram, echocardiography, laboratory examinations and computed thorax tomography. Physical examination and history are insufficient for diagnosis [11].

The aim of this study is to investigate the diagnosis distribution of geriatric patients who applied to the emergency and chest diseases outpatient clinics with chest pain and respiratory distress.

Methods

This study was performed retrospectively with 2155 patients over 65 years of age who applied to the chest diseases outpatient clinic and emergency room in two centers between 1 January 2017 and 1 January 2019 with respiratory distress and chest pain. The data were taken from the hospital automation system and patient files. Patients who were admitted with respiratory distress and chest pain over 65 years of age, who underwent computed tomography with a cardiac enzyme level were included in the study. Patients who applied for trauma mechanism were excluded from the study. Only the first applications of patients with more than one application were evaluated. Computerized thorax tomography and cardiac enzyme values in the hospital automation system were examined and troponin level was accepted as positive over 0.04 ng / ml. The diagnosis of patients over 65 years of age who applied with respiratory distress and chest pain as a result of application complaints and examinations were evaluated. Study data were analyzed using SPSS (Statistical Package for Social Sciences) Windows 22 program. Descriptive statistics are reported as mean ± standard deviation and percentages.

Results

A total of 2686 patients with respiratory distress and chest pain from the geriatric age group were included in the study. 134 patients who were admitted to the emergency room due to trauma were excluded from the study. 397 patients who had more than one application with the same complaints during the study were not included in the study. 531 of the 2686 patients included in the evaluation were not included in the study. Of the 2155
patients included in the study, 855 (39.67%) were female and 1300 (60.33%) were male, and the mean age was 73.1 ± 4.8.

Respiratory distress and chest pain were detected in 910 (42.22%) of lungs of 2155 patients, 655 (30.39%) of cardiac origin and 588 (27.28%) of other causes.

Pulmonary embolism was present in 355 (39.02%), pulmonary embolism in 172 (18.89%), chronic obstructive pulmonary disease in 58 (6.37%) and 325 (35.72%) pleural effusion, lung cancer and allergic causes were detected.

Leukocytosis (> 12000) and radiologically increased pulmonary density were detected in 355 patients diagnosed with pneumonia. Of these 355 patients, 214 (60.56%) were over the age of 85, 141 (39.71%) were in the 65–85 age group. 183 (51.54%) of the patients with pneumonia were followed up in the chest diseases service and 172 (48.45%) were hospitalized in intensive care units. Out of 355 pneumonia patients, 55 (15.49%) died.

87 (50.58%) of 172 patients with pulmonary embolism were hospitalized in the chest diseases service, 85 (49.41%) in intensive care units and their follow-up and treatments were arranged.

Eight (13.79%) of 58 patients diagnosed with chronic obstructive pulmonary disease were hospitalized in the chest diseases service, 5 (8.62%) in the intensive care unit and 45 (77.58%) were treated and discharged in our emergency department.

Lung cancer was found in 226 (38.43%) of 588 patients with symptoms related to other lung diseases, pleural effusion in 332 (56.46%) and allergic causes in 30 (5.11%) patients. It was determined that 149 (44.88%) of pleural effusions detected were secondary to cancer disease and 183 (55.12%) of them were congestive heart failure.

Acute myocardial infarction in 336 (51.29%), congestive heart failure in 159 (24.28%), pericardial effusion and pericardial tamponade in 45 (6.87%), with cardiac-induced respiratory distress and chest pain. Aortic dissection-aneurysm was detected in (17.56%).

Emergency angiography decision was taken to 336 patients with acute myocardial infarction and hospitalized in the coronary intensive care unit. Of 159 patients diagnosed with congestive heart failure, 26 (16.35%) were hospitalized in the cardiology service and 40 (25.15%) in the coronary intensive care unit. 93 (58.49%) were treated in our emergency department with congestive heart failure and were discharged after clinical recovery. 45 patients with pericardial effusion and pericardial tamponade were hospitalized in the cardiology service. The current pericardial effusion was found to be due to congestive heart failure.

Of the 115 patients with aortic dissection-aneurysm, 88 (76.52%) were taken to the emergency operation. 27 (23.47%) patients exited in the emergency room.

Presence of lung-pleural metastasis in 588 patients (15.64%) with primary lung cancer, abdominal pain, sepsis, cirrhosis, and confusion in 496 (84.35%) patients presenting with the complaint of lung and non-cardiac respiration and chest pain. and witnessed arrest cases were detected.

Discussion

In today’s conditions, the geriatric period or old age is accepted as 65 years and older in many countries. The rate of elderly population, which was 5–6% in Europe in the 1950s, increased to 20% in 2019 [12].

Thanks to the improvements in living conditions, the number of people in the geriatric age group increases in the society and this age group is more frequently encountered in emergency departments [13].

Two studies conducted in our country revealed that cardiopulmonary causes are the leading causes in emergency applications in the geriatric age group [3, 14].

When the emergency applications in the geriatric age group are examined, the most common complaints are due to cardiopulmonary causes; among these, chest pain and shortness of breath were shown most frequently, accounting for 11% of complaints [15, 16].

In a retrospective study conducted on 22530 patients, the most common reason for emergency service admission was reported to be chest pain in 24% [17, 18].

In this study, we examined the patients in the geriatric age group who applied to our emergency department with
the complaints of chest pain and shortness of breath, and examined the patients in this group demographically. In this way, we think that by evaluating only the symptoms of chest pain and shortness of breath, we examined both a more specific group and reached more detailed data belonging to this group.

The rate of admission to the emergency department of the geriatric patient group was found to be 9-37.2% of the general population [16, 17]. In this study, the rate was 13% in patients over 65 years of age.

In the studies conducted, it was found that cardiac-respiratory system diseases are the most common reason for emergency service [18].

In the current study, we think that we have demonstrated a more detailed and reasoned distribution by analyzing the diseases causing these symptoms demographically in patients over 65 years old who applied to the emergency department with respiratory distress and chest pain. It was revealed that respiratory distress and chest pain findings may be due to primary pulmonary or cardiological causes, and 27.33% of patients may experience these symptoms due to other causes. In the light of this information, we think that the patient anamnesis and patient medical records are very important when evaluating the patients, and that the history and records should be examined by the physician in the first encounter with the patient. While in most of the geriatric patients with chest pain and respiratory distress, a differential diagnosis can be achieved with history and physical examination, computed tomography has become the most frequently used diagnostic imaging method in differential diagnosis [19, 20]. By examining the data and final diagnoses of patients who underwent thorax tomography, we think that imaging method facilitates the clinician’s job in diagnosing in emergency departments and in life-threatening situations in cases where the most common and difficult to distinguish diagnosis is made in the geriatric patient group.

The purpose of this study; emergency consultation time - not to evaluate the time of hospitalization or the length of stay of the patients in the emergency room, but to conduct a demographic examination for the cause in patients presenting with respiratory distress and chest pain. There are a few limitations as the study is based on retrospective file scanning. Although sampling is formal statistical, it is possible that it does not represent the universe. Since the patients had repeated applications, only the first applications were taken. Another limitation is that the study is single-centered. geriatric patients admitted to our emergency department in Turkey geriatric population may not represent exactly for different reasons. For this, multicenter prospective studies are required.

In conclusion, given that the number of geriatric patients admitted to the emergency department is increasing day by day, the fact that emergency personnel have more information about geriatrics is an important factor that will increase the success rates of emergency treatment.

Author Contribution

DASDEMIR ILKHAN GULAY MD:
- Analysis of the content of the article
- Regulation of the presentation of the information and data in the article
- Evaluating the accuracy of the data
- Methodology
- Statistical evaluation of the article data and the arrangement and interpretation of these data
- Funding acquisition: None

CELIKHSAR HAKAN MD:
- Project administration
- Case collection, data gathering and workflow planning
- Forming the general lines and framework of the study,
- Funding acquisition: None

References


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