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Characteristics of recurrent emergency department visits within 72 hours of visits for the same or related complaints

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Abstract
The purpose of the study was to examine the characteristics of recurrent emergency department visits within 72 hours for the same or related complaints. Any repeated visits to the emergency department within the first 72 hours of discharge after the first admission as a result of same or similar complaints were defined as recurrent visits. Patients who revisited the emergency department within 72 hours after the first visit were included in the study. Recurrent visit files were taken from the Hospital Information Management System, and data were compared between the first and second visits. 1,952 (2.3%) of the 83,578 patients included fulfilled the inclusion criteria. The revisit rate was 2.3%. no significant differences were found between the visits in terms of Emergency Department triage scores; however, 2 patients with triage scores of 4 in the first visit had triage score of 1 in the recurrent visits. Presence of comorbidity was found to be significantly associated with revisit and hospitalization. Measuring and evaluating the causes of revisits to the emergency department is important since it is possible to assess hospital quality by using these parameters. We believe that prolonged emergency room observation is necessary, particularly for patients with comorbidities and those presenting complaints related to the cardiovascular system, oncology, and respiratory system in order to reduce the rate of revisit, which will eventually decrease the rates of morbidity and mortality.

Keywords: Emergency department, revisit, mortality, morbidity

Introduction

A visit to the emergency department (ED) within 72 hours of being discharged from the hospital is considered as an early revisit. Professionals whose jobs are service quality in emergency department are interested in early revisits and they determine hospital quality by measuring and evaluating ED revisits with the same complaints [1].

Recurrent visits to ED contribute indirectly to all the poblems caused by crowding as a result of causing an increase in the number of people in ED and cause medical and legal problems between patients and doctors. Recently, there has been an obvious in the number of patients admitted to ED in our country, just like the whole world. Emergency department crowding has begun to create serious problems for the hospitals of our country, too [2].

It is a fact that revisits to ED can be prevented and in the presence of reliable indicators, potential risks can be reduced. When patients come back with the same complaint in a short while after they are assessed in the ED, it is generally thought that their first assessments and treatments were insufficient [2].

A decrease in the number of unplanned revisits to the ED will also decrease the number of patients visiting the ED, the workload of healthcare professionals working in the ED and the cost of healthcare. This will eventually cause the quality of emergency care given to patients to get better, which will in turn increase patient satisfaction and decrease the risk of legal problems encountered by doctors [3].

The purpose of this study is to determine the demographic and clinical characteristics of patients revisiting the ED with same or similar complaints in the early period to find out the revisit rate and also individual, institutional and medical risk factors.

Materials and Methods

This retrospective study is a cross-sectional study conducted through archive-scanning. In order to collect data, patient files in the Hospital Information Management System were screened between 01.06.2011 and 31.05.2012. Study population included patients who had revisited the ED within 72 hours during the period of a

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year. Approval was taken from Dokuz Eylül University Ethics Committee with a protocol number of 718-GO.

The patients who revisited the ED within the first 72 hours of discharge with different complaints from the original visit, who were discharged from the ED at the first visit with their own request and those who had missing file information were excluded from the study.

Microsoft Excell for windows and Statistical Package for the Social Sciences version 15.0 for windows (SPSS Inc., Chicago, IL, USA) statistical package program were used to analyzed the data. Frequency (number) and percent and Chi-square test were used for analysis.

Results

Within the 1-year-long study period, a total of 83,578 ED admissions were recorded (Figure 1). 51.2% of the 1,952 patients revisiting the ED (2.3%) were men. Among patients between the ages of 17 and 39 (n = 865, 44.3%) [Table 1], revisits were more frequent. 2% of the patients did not have social insurance. Of the 1,952 revisits, 586 (30%) were within the first 24 hours after discharge, while the remaining 1,366 (70%) were between 24 and 72 hours after discharge [Table 2]. 929 patients (47.6%) did not have any known additional disease. Cardiovascular system (CVS) diseases (18.9%) were the most common concomitant condition while oncological problems (10.6%) were the second most common [Table 3]. Dyspnea (n = 195; 9.9%) and abdominal pain (n = 193; 9.8%) were the most common complaints at the first visit [Table 4]. The most common diagnoses of patients at the first visit were renal colic (n = 191) followed by chronic obstructive pulmonary disease (COPD; n = 94) and gastritis/duodenitis (n = 79), while the most common diagnoses at the revisits were renal colic (n = 195; 9.8%), COPD (n = 95; 4.8%), and urticaria (n = 72; 4%) [Table 5]. 84.6% of the patients were discharged again while 10.5% were hospitalized. The mortality rate at the ED was found to be 0.6% [Table 6].

Table 1. Socio-demographic data of revisit patients

Socio-demographic data of patients	n	%
Age Groups		
17-39	865	44.3
40-64	596	30.5
≥65	491	25.2
Gender		
Male	999	51.2
Female	953	48.8
Total	**1.952**	**100**

Table 2. The time intervals of revisits

The time intervals of revisits	n	%
0-24 hour	586	30
24-48 hour	850	43.6
48-72 hour	515	26.4
total	**1.952**	
	100	

Table 3. Medical history of revisits

Medical history of revisits	n	%
Cardiovascular system diseases	368	18.9
Oncological diseases	206	10.6
Genitourinaruy system	173	8.9
Respiratory system	172	8.8
Endocrine system	122	6.3
Hepatobiliary system	73	3.7
Serebrovascular diseases	55	2.8
Psychiatric diseases	38	1.9
Other	262	13.4
No property	929	47.6

Tablo 4. The most common complaints at the first visit

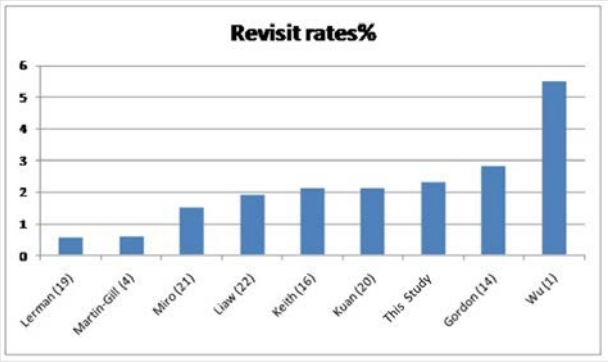
Complaint at the first visit	n	%
Dyspnea	195	9.9
Abdominal pain	193	9.8
Flank pain	184	9.4
Trauma	128	6.5
Fever	105	5.3

Table 5. The most common ten diagnosis of patients at the first and revisits

The diagnosis of the first reference			The diagnosis of revisit		
	n	%		n	%
Renal colic	191	9.8	Renal colic	195	10
COPD	94	4.8	COPD	95	4.8
Gastritis/Duodenitis	79	4.0	Urticaria	72	3.6
Urticaria	74	3.7	Gastroenteritis	72	3.6
Gastroenteritis	70	3.5	Tonsillitis	66	3.3
Urinary tract infections	66	3.3	Myalgia	60	3.0
Upper respiratory tract infection	58	2.9	Pneumonia	58	2.9
Myalgia	58	3.0	Urinary tract infections	56	2.8
Lumbalgia/Dorsalgia	55	2.8	Gastritis/Duodenitis	56	2.8
Hypertansion	54	2.8	Lumbalgia/Dorsalgia	55	2.8

Table 6. Clinical outcomes of revisits

Clinical outcomes of revisits	n	%
Discharge	1.651	84.6
Hospitalized to service	187	9.6
Hospitalized to intensive care	18	0.9
Clinical leave of his own accord	76	3.9
Dispatch	9	0.5
Ex	11	0.6
Total	**1.952**	**100**



Graphic 1. Revisit Rate %

Discussion

For the safety of both patients and physicians, it is very important to identify the characteristics of patients who are likely to revisit the ED soon after being discharged, especially the patients who are in a more severe clinical condition in their revisit [4].

Some studies make the definition of revisits to the ED as those between 24 hours and 1 month of being discharged; however, the widely accepted definition of a revisit is one within the first 72 hours. When the studies which consider the first 72 hours as the limit of revisiting time were reviewed, the lowest rate was found in Lerman and Kobernick's (0.4%) study, while the highest rate was found in Wu et al.'s study (5.5%) [1,5]. The rate found in our study (2.3%) was in line with the literature [Graphic 1].

When the influence of age on ED revisits was examined, it was found that the age distribution of patients revisiting the ED was in line with that reported in the literature (74.8% in the 17–64 age group). Although patients older than 65, who are described as geriatric patients, have a high revisit potential, they had lower revisit rates than other age groups, which was thought to be due to higher rates of hospitalization in this age group.

As expected, in patients with a history of asthma/COPD, oncological diseases, and nephrolithiasis, ED revisits were more frequent, which is a result of a great number of studies. We believe that close follow-up and treatment will significantly reduce number of revisits. On admission to the hospital, in order to identify chronic diseases, patients' medical history should be carefully recorded since comorbid chronic diseases significantly increase hospitalization rate.

The most common complaints at first visits were found to be dyspnea, abdominal pain, and chest pain in studies conducted previously. In addition, it was found that a great number of patients revisited the ED with the same or similar complaints. In our study, dyspnea (10%) was the most common cause of admission to ED and most of the patients who were admitted with this complaint were diagnosed with COPD.

In general, preventing or minimizing unnecessary revisits is the common purpose of studies which examine the causes of ED revisits [4]. It was found by a previous study that 39.6% of the avoidable revisits resulted from insufficient treatment, 14.6% were due to inappropriate prescription, 20.8% were because the patient was not adequately informed, and 36.5% were resulted from patient noncompliance [8]. We believe that appropriate prescription and proper patient education can prevent ED revisits for disorders such as renal colic, urinary tract infections, tonsillitis, and myalgia. In the course of diseases with acute onset, such as renal colic and acute urticaria, sudden flare-ups are commonly observed. These facts should be considered by ED physicians to identify patients who have a high potential to revisit the ED, and they should pay significantly more attention to these patients at the first examination. Physicians should also pay more attention to prescribing medication and informing the patients in detail about the course of the disease, what kind of conditions they should avoid and the symptoms which require revisits [4]. Revisit rates would significantly be lower if patients were more informed about these issues.

The rate of hospitalization was higher among patients who revisited the ED (10.5%) when compared with those admitted to the hospital from the ED. This result shows that hospitalization criteria for patients revisiting the ED need to be examined more carefully.

Of the patients revisiting the ED, 15.4% were hospitalized, which indicates that prolonged observation is necessary particularly for patients with comorbidities such as diabetes mellitus, asthma, COPD, coronary artery disease and malignancy and those with cardiovascular, oncological, and respiratory complaints. These patients should be followed up in the emergency observation rooms, if possible, which will cause a drop in recurrent visits and thus in mortality and morbidity rates.

Revisit to the ED in the early period is a common problem. The reasons for early revisits may be natural disease course, heightened patient sensitivity, medical errors or poor patient education regarding treatment outcomes. Thus, it is possible to prevent at least some of these revisits through appropriate interventions. Many tests and

interventions are easily accessible to patients in EDs, thus patients would prefer emergency services to those at primary healthcare institutions, if permitted by social insurance. If patients are provided with more accurate and rapid diagnosis and if emergency rooms are well equipped, there can be a decrease in the number of ED revisits and thus mortality and morbidity rates. Large-scale studies are required to present the demographic characteristics and risk factors of revisit patients who are considered to be in high risk patient group and also the precautions that can be taken.

Limitations

The causes of readmission to the ED (e.g., persistent complaints, recurrence, and inability to obtain an appointment from the physician working in the outpatient clinic) were not found out because of the retrospective design of the study. Patients were excluded because of missing data files and patients who used other emergency services and those who died at home were not included because this was a single-center study. Finally, percentages were calculated from the total number of patients, since a single patient may have had more than one additional disease.

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