ORIGINAL ARTICLE / ÖZGÜN ARAŞTIRMA MAKALESİ

The Most Common Chronic Diseases Among The Emergency Room Admissions: Top 7

Acil Serviste En sık Görülen Kronik Hastalıklar: İlk Yedi

Mehmet Mahir Kunt, Meltem Akkaş, Nalan Metin Aksu, Mehmet Ali Karaca

ABSTRACT

Objectives: Admissions due to chronic diseases (CD) constitute the significant number of emergency room (ER) visits. The current study aimed to evaluate chronic disease related to admission (CDRA) to ER.
Material and methods: In this descriptive retrospective study, patients (> 16 years of age) who admitted to Hacettepe University Faculty of Medicine Emergency Department, from May 1st to 10th days, 2010 were enrolled in this study.
Results: 161 (52.4%) of the patients were in Admissions Related to Newly Diagnosed Disease (ARNDD), remaining 146 (47.6%) patients were in CDRA group. In CDRA group, median age of visitors was 59 year, whereas the median age of the patients with ARNDD was 40 year. Most frequent CDRA causes were: Cerebrovascular Disease (CVD) in 3%, Chronic Kidney Disease (CKD) in 3%, Diabetes Mellitus (DM) in 8%, Chronic Obstructive Pulmonary Disease(COPD) and Asthma in 11%, Hypertension (HT) in 12%, Malignancy in 17%, Ischemic Heart Disease (IHD) in 18%, more than one chronic disease in 9% and other chronic diseases in 18% of the patients. Critical and emergent cases constituted the 39% and 19% of CDRA and ARNDD, respectively.
Conclusions: The rate of admission to emergency rooms due to chronic diseases increases day by day. In addition, there is a higher rate of critical and urgent cases in patients with chronic diseases. When planning emergency medical education, chronic diseases should be considered as an important factor.

Key words: Emergency Room, History of Chronic Disease, Diagnosis, Emergency medicine education

ÖZET

Amaç: Kronik hastalıklar nedeniyle yapılan başvurular acil servis başvurularında önemli oranını oluşturmaktadır. Bu çalışmada, kronik hastalıklara bağlı Acil Servise Başvuruların (KHAB) değerlendirilmesi amaçlandı.
Materyal ve Metod: Bu retrospektif tanımlayıcı çalışmaya 16 yaşından büyük ve Hacettepe Üniversitesi Tıp Fakültesi Acil Servisi'ne 1 ile 10 Mayıs 2010 tarihleri arasında başvuran hastalar çalışmaya alındı.
Bulgular: Hastaların 161'i (% 52.4) yeni tanı konulan hastalıklara bağlı başvurular (YTHB) grubunda, 146'sı ise (% 47.6) kronik hastalığa ilişkin başvurular (KHAB) grubunda idi. KHAB grubunda, ziyaretçilerin ortanca yaşı 59, YTHB'li hastaların ortanca yaşı 40 idi. En sık KHAB nedenleri: % 3'ünde Serebrovasküler Hastalık (SVH),% 3'ünde Kronik Böbrek Hastalığı (KBH),% 8'inde Diabetes Mellitus (DM), % 11'inde Kronik Obstrüktif Akciğer Hastalığı (KOAH) ve Astım , % 12'sinde Hipertansiyon (HT), % 17'sinde Malignite,% 18'inde İskemik Kalp Hastalığı (IKH), % 9'unda birden fazla kronik hastalık ve % 18'inde diğer kronik hastalıklar mevcuttu. Kritik ve acil durumlar sırasıyla KHAB ve YTHB'nin % 39 ve % 19'unu oluşturmaktaydı.
Sonuç: Kronik hastalıklar nedeniyle acil servislere başvuru oranları günden güne artmaktadır. Ayrıca kronik hastalıklara bağlı başvurularda daha yüksek oranda kritik ve acil müdahale gerektiren hastalıklar bulunmaktadır. Acil tıp eğitimi planlanırken, kronik hastalıkların önemli bir faktör olduğu düşünülmelidir.

Anahtar Kelimeler: Acil servis, Kronik hastalık öyküsü, Tanı, Acil tıp eğitimi

Received: June 21, 2019 Accepted: June 28, 2019
[1] Hacettepe University, Medical School Emergency Department, Sıhhiye/Ankara
Corresponding Author: Mehmet Mahir Kunt MD **Address:** Hacettepe University, Medical School Emergency Department, Sıhhiye/Ankara
Phone: +9031230151080 **E-mail:** mmkunt@gmail.com
Atıf için/Cited as: Kunt MM, Akkus M, Aksu NM, Karaca MA. The Most Common Chronic Diseases among The Emergency Room Admissions: Top 7. Anatolian J Emerg Med 2019;2(2); 18-21.

Introduction

Chronic diseases (CD) constitute the 31.4% of Emergency Room (ER) admissions as stated in 2008 data reported by CDC's National Automated Biosurveillance System (1). Patients with chronic diseases are admitted to ER for a variety of reasons. Besides urgent medical and surgical treatment of chronic diseases, primary medical care is provided in ERs. The economic burden of chronic diseases is severe, accounting for 46% of the global burden of diseases (2). Chronically ill patients account for 84% of all national medical costs in the United States (3). Admission triage category, chronic diseases with comorbidity and severity of illness is associated with length of stay in the hospital (4). Major causes of death in almost all countries have been chronic diseases. The losses in national income for 2005 due to deaths from heart disease, stroke and diabetes were estimated (in international dollars) to be $18 billion in China, $1.6 billion in the Unites Kingdom, and $1.2 billion in Canada (5).

We aimed to estimate the ratio of chronic diseases that were admitted to our ER and their degree of emergency.

Material and Methods

In this descriptive retrospective study, patients (> 16 years of age) who admitted to Hacettepe University Faculty of Medicine Emergency Department, from May 1st to 10th days, 2010 were enrolled in this study.

Patients discharged without definitive diagnoses from ER were excluded. It was ensured whether the complaint of admission is due to a chronic disease or due to an acute disease diagnosed in ER.

All the patient's symptoms were classified in admission according to Hacettepe University Five Level Triage Scale. The degree of emergency is defined as critical disease (T1), emergent patients (T2), urgent patients (T3), less urgent patients (T4) and patients that are not urgent (T5). The degree of emergency was assessed after analyzing the symptoms and the signs of admission together with the diagnosis.

Statistical analyses were performed using SPSS® for Windows Version 15.0.

Numerical variants were expressed as mean ± standard deviation or median (minimum and maximum), and non-parametric variants were expressed in numbers and percentages.

Results

Total 308 patients older than 16 years of age and admitted to Hacettepe University Faculty of Medicine Emergency Department. One patient was excluded because he died without a diagnosis.

161 (52.4%) of patients were classified as Admission Related to Newly Diagnosed Disease (ARNDD) and 146 (47.6%) of patients were classified as Chronic Disease Related Admissions (CDRA). Median age of CDRA was 59 (min: 17, max: 88) whereas the median age of ARNDD was 40 (min: 17, max: 90) years. The cause of CDRA was inappropriate treatment or acute exacerbation of chronic disease for 60 (41%) of patients and complication of chronic disease for 86 (59%) of patients.

The most common chronic diseases were ischemic heart disease (IHD), malignancy, hypertension (HT), chronic obstructive pulmonary disease (COPD) and asthma, diabetes mellitus (DM), chronic kidney disease (CKD) and cerebrovascular disease (CVD). Nine patients had more than one CD (Table 1).

Diagnosis	CDRA
	n (percent)
CVD	4 (3%)
CKD	5 (3%)
DM	12 (8%)
COPD and asthma	16 (11%)
HT	17 (12%)
Malignancy	25 (17%)
IHD	27 (18%)
More than one CD	13 (9%)
Other	27 (18%)
Total	**146 (100%)**

CD: Chronic diseases **CDRA:** Chronic disease related to admission **CVD:** Cerebrovascular disease **CKD:** Chronic kidney disease **DM:** Diabetes mellitus **COPD:** Chronic obstructive pulmonary disease **HT:** Hypertension **IHD:** Ischemic heart disease

Table 1: Number of the patients admitting because of CD and incidence of CD on admission in total number of patients

The most common ARNDD were related to injury, gastrointestinal diseases, ear, nose, throat and eye diseases, cardiovascular diseases, respiratory diseases, neurological diseases and musculoskeletal diseases (Table 2).

ARNDD	n (percent)
Hematologic diseases	1 (0.6%)
Obstetric-gynecologic diseases	3 (1.9%)
Psychiatric diseases	6 (3.7%)
Urogenital diseases	7 (4.3%)
Dermatologic diseases	7 (4.3%)
Intoxication	9 (5.6%)
Musculoskeletal diseases	9 (5.6%)
Neurologic diseases	10 (6.2%)
Respiratory diseases	12 (7.5%)
Cardiovascular diseases	17 (10.6%)
Ear, nose, throat, eye diseases	17 (10.6%)
Gastrointestinal diseases	24 (14.9%)
Injury	39 (24.2%)
TOTAL	**161**

ARNDD: Admissions Related to Newly Diagnosed Disease

Table 2: Number of the patients admitted ER because of ARNDD

Critical and emergent patients (T1+T2) constitute the 39% of CRDA and 19% of ARNDD (Table 3).

Triage levels	ARNDD	CRDA
	n (percent)	n (percent)
T1	16 (10%)	30 (21%)
T2	14 (9%)	27 (18%)
T3	60 (37%)	51 (35%)
T4	55 (34%)	31 (21%)
T5	16 (10%)	7 (5%)
Total	**161 (100%)**	**146 (100%)**

T1: Critical patient **T2:** Emergent patient **T3:** Urgent patient **T4:** Less urgent **T5:** Non urgent

ARNDD: Admission Related to Newly Diagnosed Disease, **CDRA:** Chronic Disease Related Admissions

Table 3: Triage levels of ARNDD and CDRA patients

Discussion

Patients admitting ERs are gradually increasing (1, 5-11). According to 2006 National Health Statistic Reports of National Hospital Ambulatory Medical Care Survey (NHAMCS), 119.2 million (40.5 visits per 100 person) visits are made to the ER(9).

In this study, it is shown that approximately half of emergency admissions is due to pre-diagnosed one or more chronic diseases, as stated in 2008 data reported by CDC's National Automated Biosurveillance System; HT makes the 128.4%, DM makes the 68.5%, IHD makes the 36.2%, cardiac dysrhythmias make the 32.4%, malignancy make the 26.8%, COPD makes the 10.9%, CVD makes the 10.8% of ER admissions (1). According to 2007 North Caroline Disease Event Tracking and Epidemiologic Collection Tool (NC DETECT) data, the first three diseases accounting for the ER visits are IHD (17.9 % of all ER visits), substance and alcohol abuse or withdrawal (11.2%) and DM (78%)(10). The ratio of chronic diseases may change depending on location and specificity of the hospitals. In this study, symptoms related to IHD, malignancy, HT, COPD / asthma and DM were the most common admission causes. Because of high incidence of coronary artery disease and the availability of Percutaneous Coronary Intervention for 24 hours in our hospital, most of the CRDA were IHD. Because the fact that our university has an oncology hospital and there are a lot of cancer patients on follow-up, CRDA related to malignancy seen in higher ratio than expected. Substance and alcohol abuse is lower than 1%, which is quite low according to NC DETEC data. This result may be due to lower use of substance and alcohol due to regional religious beliefs.

Chronic disease frequency is directly correlated to the age of the patient. Both the incidence and the prevalence of chronic diseases increase with age (11). In this study CRDA mean age were higher than ARNDD(12).

ER visits of patients between 65 and 75 years of age is increased by 34% between 1993 and 2003 (4). In the United States, during 2006, the annual ER visit rate was of 49% for people older than 65 years and 60% for people older than 75, compared with an overall rate of 41% for general population(15). Similiary, in our study, patients in CDRA were older than ARNDD group.

Older adults have more comorbidities, cognitive and functional impairments and social problems. Compared with younger persons, older adults visit emergency rooms at a higher rate, and they stay longer in the ER (14).

Scientific and technological developments and improvements in natural and social factors have provided a longer life span for human. The ratio of older adults was 8% at 1950, and 12% at 2013. It is expected to rise to 21% by 2050 (13). These predictions propose that in the upcoming years there will be more elder adults, more chronic diseases and more CRDA in ERs.

Another important point is that most of the ER visits of chronically ill patients consists of critical cases, emergent cases and cases requiring hospitalization (5, 16, 17). Similarly, in this study, critical and emergent cases found to be more than two times higher for CRDA compared with ARNDD. In this study, CRDA group has more emergent triage criteria.

Emergency physicians have limited time due to overcrowding. It is estimated that an ER physician must have 53 minutes on average for examination(8). On the other hand, patients may have several symptoms and complicated diseases. The most important consequence of working under heavy conditions for emergency physicians would be to overlook the emergent cases. In this study CRDA group was consist of 47.6 % all ER visits. Moreover, CDRA group's diagnosis were more acute than ARNDD group. It is obvious that doctors will meet more people with chronic diseases because of aging population.

As a result, the rate of admission to emergency rooms due to chronic diseases increases day by day. In addition, there is a higher rate of critical and urgent cases in patients with chronic diseases. When planning emergency medical education, chronic diseases should be considered as an important factor.

Limitations

Due to the lack of a nation-wide medical information system in Turkey, this study was performed using the data provided only by our hospital consisting of previous histories, examinations and treatments. Our hospital is one of the biggest reference hospitals of our country. The ER that this study performed is a center to which older and urgent patients with chronic and complicated diseases are admitted. For this reason chronic disease and urgent situations related to chronic diseases ratios may be detected higher than it is expected. Multicenter studies with larger populations are required in order to detect the

real CRDA ratio in countries that does not have Automated Biosurveillance System.

Conflict of interest

All authors have no conflict of interest to disclose.

Financial Disclosure

The authors declared that this study has received no financial support.

References

1. Tokars JI, English R, McMurray P, Rhodes B. Summary of data reported to CDC's national automated biosurveillance system, 2008. BMC Med Inform Decis Mak. 2010;10:30.

2. World Health Organization. Facts related to chronic diseases. 2006. 2006 [updated 2006; cited 17.1.2016]; Available from:http//www.who.int/dietphysicalactivity/publications/facts/chronic/en/. .

3. Moses H, 3rd, Matheson DH, Dorsey ER, George BP, Sadoff D, Yoshimura S. The anatomy of health care in the United States. JAMA. 2013;310(18):1947-63.

4. Cournane S, Byrne D, O'Riordan D, Silke B. Factors associated with length of stay following an emergency medical admission. Eur J Intern Med. 2015;26(4):237-42.

5. Morabia A, Abel T. The WHO report "Preventing chronic diseases: a vital investment" and us. Soz Praventivmed. 2006;51(2):74.

6. Erkuran MK, Duran A, Ocak T, Citisli V, Kaya H. The impact of the duration of admission to the emergency room on the mortality of intensive care patients. Niger J Clin Pract. 2014;17(3):320-3.

7. FitzGerald G, Jelinek GA, Scott D, Gerdtz MF. Emergency department triage revisited. Emerg Med J. 2010;27(2):86-92.

8. Nawar EW, Niska RW, Xu J. National Hospital Ambulatory Medical Care Survey: 2005 emergency department summary. Adv Data. 2007(386):1-32.

9. Riguzzi C, Hern HG, Vahidnia F, Herring A, Alter H. The July Effect: is emergency department length of stay greater at the beginning of the hospital academic year? West J Emerg Med. 2014;15(1):88-93.

10. Waller A, Hakenewerth A, Tintinalli J, Ising A. North Carolina Emergency Department data: January 1, 2007-December 31, 2007. N C Med J. 2010;71(1):15-25.

11. Wootton R, Dimmick SL, Kvedar JC. Home telehealth : connecting care within the community. London ; Ashland, OH: Royal Society of Medicine Press; 2006.

12. Chronic disease. [cited 18.1.2016]; Available from: http://www.health.gov.au/internet/main/publishing.nsf/content/chronic-disease.

13. Population ageing. New York: United Nations Department of Economic and Social Development. Population division 2013. [cited 18.1.2016]; Available from: http://www.un.org/en/development/desa/population/publications/pdf/ageing/WorldPopulationAgeing2013.pdf

14. Yip WL, Fan KL, Lui CT, Leung LP, Ng F, Tsui KL. Utilization of the Accident & Emergency Departments by Chinese elderly in Hong Kong. World J Emerg Med. 2015;6(4):283-8.

15. Pitts SR, Niska RW, Xu J, Burt CW. National Hospital Ambulatory Medical Care Survey: 2006 emergency department summary. Natl Health Stat Report. 2008(7):1-38.

16. Aminzadeh F, Dalziel WB. Older adults in the emergency department: a systematic review of patterns of use, adverse outcomes, and effectiveness of interventions. Ann Emerg Med. 2002;39(3):238-47.

17. Roberts DC, McKay MP, Shaffer A. Increasing rates of emergency department visits for elderly patients in the United States, 1993 to 2003. Ann Emerg Med. 2008;51(6):769-74.