Assessment of Non-emergency Cases Attending Emergency Department at King Fahad General Hospital, Jeddah; Pattern and Outcomes.

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Abstract: Objectives: To estimate a period-percentage of non-emergency cases attending emergency department (ED) at King Fahd Hospital, Jeddah, KSA and to describe the pattern and outcome of those cases. **Subjects and Methods:** A cross-sectional study was conducted, taking a representative random sample of patients who attended the emergency department of King Fahd Hospital in 2012. A checklist was completed using the file data in ED archive. This list contains socio-demographics, medical status, complaints, emergency level and outcome. The Canadian emergency department triage and acuity guidelines (CTAS) were used to assess the emergency level. **Results:** We analyzed 388 patients' files, of which (82.7%) were adults, (71.9%) were Saudis and (69.1%) were male. Only (7.9%) of the patients arrived in ED by ambulance. Trauma and RTA were the main causes of attending ED (24.5%), followed by fever (12.4%) and GIT complaints (11.9%). Based on the CTAS classifications, (42.3%) of the patients were class V, (22.7%) class IV (less and non urgent), and only (3.1%) in class I (Resuscitation). Our study revealed that (22.7%) of the patients needed admission to hospital. **Conclusion:** Inappropriate utilization of the ED is a common practice in the Saudi community. Most of the patients come with minor self-limiting complaints. Concept of "fast track" units should be introduced in ED to ensure the expeditious management of low acuity patients.

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Key words: Non-emergency cases, emergency department, Jeddah, KSA

1. Introduction

Emergency medicine is the medical specialty which concern with evaluation, management, and prevention of unanticipated illnesses and injuries[1]. The Emergency Department (ED) is considered the crucial link between pre-hospital and in-hospital medical care, where professional care always offered all the time to everyone in need[2]. A continuous increase has been universally observed during the past few decades.[3,4] Elevated patient numbers, in addition to organizational problems such as laboratory and admission delays and shortage of staff, resulting in overcrowded EDs, represent obvious determinant effects.[3,5] An emergency episode is defined as an acute condition that need immediate treatment, and if not treated promptly, can result into serious disability or impairment of bodily function. [6]

Increased waiting times in overcrowded emergency departments have become serious problems in the hospitals of many countries like Canada and USA[7]. Overcrowding, large number of patients, and excessive waiting times have forced ED to provide extra complex and prolonged care than usual. These factors are responsible for delayed access to care and increased risk of unfavorable outcomes.[8,9] Documentation of the ED patient who choose to leave before being examined by a physician is currently recognized as an important ED quality indicator.[10]

Non-emergency cases are one of the main causes of overcapacity in an emergency department, which is a worldwide problem, affecting health providers, health consumers, health resources and even economy eventually[11].

The objectives of this study were to estimate a period-percentage of non-emergency cases attending the emergency department at King Fahd Hospital, Jeddah, KSA and to describe the pattern and outcome of these cases.

2. Material and Methods

A cross sectional analytic study was conducted by evaluating all patients who attended the ED of King Fahd General Hospital (KFH), Jeddah in 2012. It is the biggest hospital in Jeddah city, receiving about 1.4 million patients annually, of which 9.5% were coming via ED according to KFH 2012 statistics.

The sample size was calculated using the EPI info program version 6, putting in mind the following

consideration: The number of patients who attended the KFH ED in 2012 was 134,190; expected frequency of nonemergency cases is 50% to ensure maximum sample size with acceptable interval of ± 5% and confidence interval of 95% with a power of 90%. The sample size accounted for 352 files. We added 10% to adjust for any missing data, thus we had 388 files in total.

A systematic random sampling technique was adopted to select the sample. The first file was selected randomly out of the initial 20 files, followed by every 20th file from the emergency data list. A total of 388 files were included.

A checklist was filled from the data available in the randomized chosen files. This checklist contains the following variables; age, gender, nationality, medical status such as the complaint, duration of the complaint, method of arrival (ambulance or walk-in), emergency level, and the outcome (discharge, admission, referral or death).

Emergency level was scaled according to the Canadian Emergency Department Triage and Acuity (CTAS) guidelines which is considered as a valid and reliable scaling system worldwide, [12] and is already being applied in emergency department of KFH, where Level I: Resuscitation, Level II: Emergent, Level III: Urgent, Level IV: Less Urgent, and Level V: Non Urgent.

3. Results:

The highest percentage of patients who visited the ED were Saudis (71.9%), (69.1%) were males, and (82.7%) were adults (19+ years). Only (7.9%) of the patients arrived to ED by ambulance. Almost one third (30.9%) of the ED visits were on weekends, and (43.8%) were recorded at the evening shifts (4pm-12mn). It was found that the main causes for attending ED were trauma and RTAs (24.5%) followed by fever (12.4%), GIT problems (11.9%) and chest problems (7.7%). Meanwhile, it was noted that the least frequent visits were due to psychiatric problems (1.3%). 161 patients (41.5%) indicated that their complaints started within the previous 24 hours, and almost one third reported their complaints initiated between 24-48 hours.

Table 1 shows the outcome of these ED visits. Almost half of the patients were discharged with treatment, while (6.2%) of the patients were discharged without treatment. It was observed that only (22.7%) required hospital admission.. On the other hand, (16.8%) were referred for follow up in primary health care centers, and (4.8%) were referred to other hospitals, namely the Psychiatric Hospital and Maternity and Children's Hospitals.

Table 1:- Outcome of the visit to the ED.

Outcome of the visit	No.	%
Admission	88	22.7
Discharge with treatment	188	48.5
Discharge without treatment	24	6.2
DAMA*	4	1.0
Referral:	84	21.6
- Referral to PHC center	(65)	(16.8)
- Referral to other hospital	(19)	(4.8)
Total	388	100

* Discharged against medical advice

The present study found that a large proportion of patients (42.2 %) who visited ED at KFH Jeddah were non- emergency cases according to (CTAS) guidelines (Fig 1).

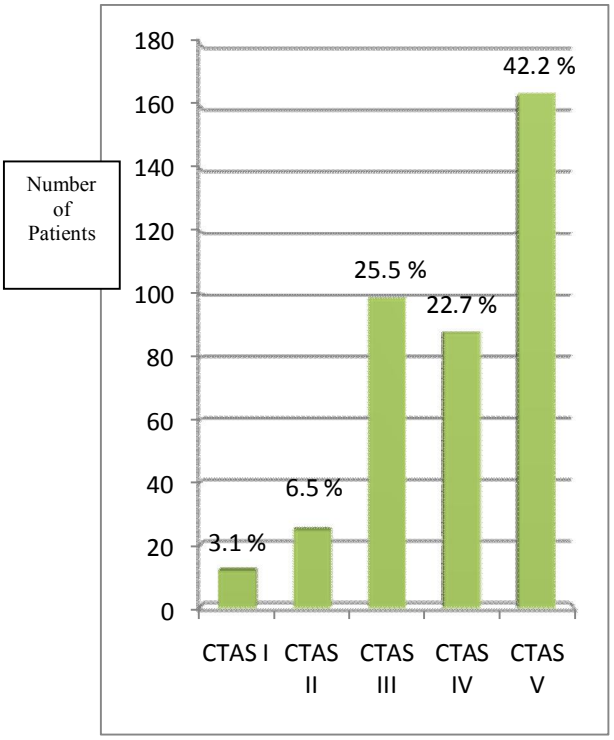

Fig 1: Patients acuity level according to the Canadian Triage Acuity Scale Classifications.

Table 2 shows that a significantly higher percentage of the non Saudi patients (36.7%) attended the ED in the morning shift (8am-4pm), while a higher percentage of Saudi patients (30.5%) were attending in the night shift (12mn-8am), making a statistically significant outcome ($p<0.05$). However, there were no statistical significant differences regarding their distribution along the days of the week. It was observed that a higher percentage of the non Saudi patients arrived to the ED by ambulance

(13.5%) as compared to Saudi patients (5.7%) p<0.05. On the other hand, a lower percentage of the non Saudi patients (4.6%) were classified as either CTAS I or CTAS II, compared to Saudi patients (11.5%) but these differences were not statistically significant. Furthermore, a higher percentage of the non Saudi patients had complaints lasting less than 24 hours (53.9%) with the Saudi patients showing a result of (48.5%).Once again, these differences were non significant.

Table 2:- Differences in the utilization of the ED according to nationality of the patients.

Different utilization items	Nationality of the patients				
	Saudi		Non Saudi		P value*
	No.	%	No.	%	
Arrival to ER					0.039
8am-4pm	71	25.4	40	36.7	
4pm-12mn	123	44.1	47	43.1	
12mn-8am	85	30.5	22	20.2	
Day of arrival to ER					0.450
Saturday	29	10.4	9	8.3	
Sunday	25	9.0	18	16.5	
Monday	46	16.5	16	14.7	
Tuesday	52	18.6	18	16.5	
Wednesday	38	13.6	17	15.6	
Thursday	45	16.1	18	16.5	
Friday	44	15.8	13	11.9	
Mode of transportation				0.017	
By ambulance	14	5.7	13	13.5	
Own mode of transport	232	94.3	83	86.5	
Duration of complaint					0.348
<24 hours	113	48.5	48	53.9	
24-<48 hours	94	40.3	27	30.3	
48-1 week	18	7.7	9	10.1	
>1 week	8	3.4	5	5.6	
CTAS classification					0.231
CTAS I	10	3.6	2	1.8	
CTAS II	22	7.9	3	2.8	
CTAS III	66	23.7	33	30.3	
CTAS IV	65	23.3	23	21.1	
CTAS V	116	41.6	48	44.0	

* *Chi Square*

Table 3 illustrates a significantly greater percentage of patients aged (19-40 years) are attending the ED either in evening shift (48.1%) or the night shift (30.6%), while the younger or older patients are more frequently attending the ED in the morning shifts. These differences were statistically significant p<0.05. Meanwhile, it was found that a significantly higher percentage of younger patients (<18 years) were classified as either CTAS IV (35%) or CTAS V (38.3%) when compared to the middle group (19-40 years) and older (>40 years), and these differences are statistically significant p<0.05. On the other hand it was noted that there are no statistically significant differences among the study groups according to their age groups regarding the days of their arrival to the ED, modes of transportation or duration of their complaints p>0.05.

Table 3:- Differences in the utilization of the ED according to age group of the patients.

Different utilization items	Age groups of the patients						P value*
	<18 years		19-40 years		>40 years		
	No.	%	No.	%	No.	%	
Arrival to ER							0.026
8am-4pm	23	38.3	44	21.4	30	37.0	
4pm-12mn	22	36.7	99	48.1	32	39.5	
12mn-8am	15	25.0	63	30.6	19	23.5	
Day of arrival to ER							0.658
Saturday	4	6.7	23	11.2	7	8.6	
Sunday	8	13.3	22	10.7	11	13.6	
Monday	12	20.0	31	15.0	12	14.8	
Tuesday	11	18.3	34	16.5	16	19.8	
Wednesday	12	20.0	27	13.1	8	9.9	
Thursday	8	13.3	32	15.5	16	19.8	
Friday	5	8.3	37	18.0	11	13.6	
Mode of transportation							0.237
By ambulance	1	2.0	17	9.0	5	6.9	
Own transport	49	98.0	171	91.0	67	93.1	
Duration of complaint							NA
<24 hours	31	62.0	82	46.9	31	49.2	
24-<48 hours	15	30.0	72	41.1	22	34.9	
48-1 week	2	4.0	13	7.4	8	12.7	
>1 week	2	4.0	8	4.6	2	3.2	
CTAS classification							0.003
CTAS I	1	1.7	4	1.9	6	7.4	
CTAS II	3	5.0	14	6.8	7	8.6	
CTAS III	12	20.0	45	21.8	29	35.8	
CTAS IV	21	35.0	42	20.4	17	21.0	
CTAS V	23	38.3	101	49.0	22	27.2	

* Chi Square NA: Not applicable

Discussion:

Adult patients accounted for the highest proportion of ED visits in our study, which is consistent with other studies conducted in UAE,[13] Australia[14] and Spain.[15] The Australian study indicated that overall, male patients visited the ED more often than females[14]. This result is quite similar to what has been reported at Al-Kharj, KSA[16]. In our study, males represent almost two-thirds of ED visits.

In the current study, 43.8% of ED visits were in the shift between 4:00 pm and 12:00 mid-night. The National Ambulatory Care Reporting System (NACRS) in Canada suggested that ED visits varied according to time of day with a tendency to increase from around 7:00 a.m. until midday[17]. In the present report, the volume of visits remained at about this level during the daytime with a drop in volume observed around 8:00 pm. This pattern is similar to that seen in other countries. An example of this reported in 2003 by the Centers for Disease Control and Prevention in the USA that ED visits increased in the morning until late afternoon and the early evening (between 4 pm and 8 pm) [18].

In the present study, emergency cases (CTAS I, II and III) constituted altogether (35%) of the study participants while non-emergency cases (CTAS IV and V) constituted (65%). NACRS data indicates that large portion of the patients (78%) seen in EDs in 2003-2004 were considered as either urgent (CTAS III) or less-urgent (CTAS IV). Those requiring immediate (CTAS I) or emergency care (CTAS II) represented less than 10% of all ED visits (0.5% for CTAS I, and 8.2% for CTAS II). Similar figures were reported by other countries, with less-urgent cases in their ED. In Australia[19], UK[20], and USA[21, 22] (12-15%) of patients were triaged as most severe (using a variety of assessment methods). A similar result to that was also recorded in NACRS[17].

Contributory factors in the use of ED for less/non-urgent care include convenience, limited access to primary health care, limited availability of social support, and similar caregiver patterns of

health care seeking for one's self[23-26]. This increase in the number of patients visiting ED with primary care problems resulted in increased waiting time for urgent cases.

Based on the chief complaints, the current study showed that trauma/RTA, fever, GIT and respiratory symptoms were mainly reported. While the study conducted at Al-Kharj, KSA[16] showed that respiratory tract infection is the main complaint followed by miscellaneous complaints such as mild conjunctivitis, allergic rash, minor burns, gastrointestinal problems, aches, and pains, in Sweden, Backman, et at[27] reported ED patients main complaints were digestive, musculoskeletal, or traumatic symptoms. Children ≤ 15 years were commonly seen in ED for fever, cough, vomiting and headaches, Some reported with unspecified injuries to head, neck, or face. Adults however reported most frequently with complaints of chest pain, shortness of breath, headache, abdominal pain, and back pain.

Conclusions and Recommendations:

A high percentage of non emergency cases attend the ED, consuming time & resources that should be reserved for urgent cases. Evening shift had the maximum flow of patients, so we recommend that it should be supplemented by additional doctors and paramedical staff.

An efficient laboratory and radiological support in terms of speed and location can help to minimize the overcrowding in ED.

A continuous public awareness program should run in the media regarding judicial use of ED, highlighting the adversities related to misuse.

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