Reasons of Overcrowding of Non-Urgent Cases in the Emergency Department, Children Hospital, Taif City, Kingdom of Saudi Arabia

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Abstract:

Background: Most of patients who visit the emergency departments (EDs) in Saudi Arabia have non- urgent conditions, which results in overcrowding, long waiting periods and delayed care for severely ill patients.

Objective To define the reasons for non-urgent visits to the Emergency Department (EDs) in Taif Children Hospital, and determine the aspects associated with patient perceptions of urgency.

Methodology: A cross-sectional study was carried out throughout August, 2016 included 400 below 12 years children; consecutively presenting as Canadian Triage and Acuity Scale (CTAS) IV or V at the Emergency Department (EDs). A 5 minute face-to-face survey was utilized from collecting data from parents.

Results: The study included 400 patients and their guardians. More than half of them were males (57%). Majority of patients (94.5%) were uninsured. Most of the patients arrived at ED between 4 pm and 12 am

(62.8%). Most patients' guardians did not visit the primary health care provider before coming to ER (82.8%). Only 5 (1.3%) patients were with CTAS 3 or less, while 395 (98.8%) were with CTAS 4 or 5. The decision to come to ED was made by referral from primary healthcare in only 3.2% whereas it was the patient's escort, or guardian in 81.3% of parents who took that decision. Regarding factors associated with not eligible visiting of ER, involvement of the respiratory system, p=0.005 and age of the children, p=0.051 were the most two important determining factors for illegal visiting ER.

Conclusion: The main factor of overcrowding in Emergency Departments (EDs) was lack of awareness and usage of Primary Health Care. We recommend that Ministry of Health start making campaigns or any other procedures to aware the population about the rule of the primary health care centers.

Keywords: Emergency department, Canadian Triage and Acuity Scale, non-urgent patient perception, Taif, Saudi Arabia

INTRODUCTION

Emergency medicine is the medical specialty responsible for the diagnosis and treatment of unforeseen illness or injury [1]. Overcrowding of emergency rooms (ER) is a serious public health problem. The pediatric emergency rooms is becoming as important provider of routine health care. A large proportion of all visits to Emergency Departments (EDs) are for non- urgent cases [2-3].

The American College of Emergency Physicians prescribed crowding as a situation in which the identified need for emergency services exceeded available resources for patient care in the emergency department, hospital, or both [4]. One of main reasons for crowding is inadequate staffing [5], and insufficient hospital beds [6].

Non-urgent patients prefer to visit EDs, rather than primary health care as it provides care with no need for an appointment, in a place that has modern and high qualified technologists [7-9]. Another reason is the unavailability of the primary health care centers during nights and on weekends [7, 9, 10].

There are limited numbers of studies in Saudi Arabia that analyze the reasons for overcrowding in EDs. Therefore, this study was conducted aimed at collecting and analyzing the reasons for patients with non-urgent complains attending in Emergency Department (EDs) in Children Hospital in Taif city in order to optimize services and increase the level of awareness and patients' satisfaction.

SUBJECTS AND METHODS

This was a cross-sectional descriptive study conducted in the Children Hospital in Taif, Kingdom of Saudi Arabia. It included male and female children patients below 12 years of age attending the EDs throughout August, 2016. Children with acute trauma, surgical conditions, uncooperative parents and those with existing psychiatric history were excluded from the study.

Four hundred randomly selected non-urgent children, triaged as CTAS level IV or V were studied over a period of 25 days.

As per the ED protocol, arriving patients were assessed by the triage nurse and assigned to a CTAS acuity level. After being assessed as non-urgent, the researcher provided participants` parents with a study

information sheet. After allowing 10-15 minutes for parents to read and understand the participant information, parents of chosen children were approached by the researcher who explained the purpose of the study. On obtaining verbal consent, a 5 minute face-to-face survey was administered in a waiting area used for their assessment to ensure privacy and confidentiality.

Permission to conduct this study was granted by the Ethics Research Committee at the Children Hospital in Taif city. Patients` informed Consent was taken from guardian/escort and data were confidential used for the purpose of this study.

Data were analyzed using SPSS statistical software version 22. All variables were coded before entry and were checked before analysis.

Frequency distribution was carried out for dependent and independent variables.

RESULTS

The study included 400 patients and their guardians. Table 1 summarizes their baseline and demographic characteristics. More than half of them were males (57%). Almost two-thirds (63.7%) of parents were employed. Majority of patients (94.5%) were uninsured. Eligibility for free medical services was reported by majority of them (96.7%) whereas eligibility for treatment in a second hospital was reported by 24% of them.

Most of the patients arrived between 4 pm and 12 am (n= 251; 62.8%) whereas 146 (36.5%) arrived between 8 am and 4 pm and only 3 patients representing < 1.0% arrived between12 am and 8 am. Patients' complaints at presentation varied from respiratory (n= 271; 67.8%); namely, sore throat, cough, and dyspnea; gastrointestinal, (n= 51; 12.8%); namely diarrhea, vomiting, abdominal pain; and some 78 patients (19.4%) had variable complaints (Fig. 1).

Most patients' guardians did not visit the primary health care provider before coming to ER (n= 331; 82.8%) while only 69 (17.3%) did. Only 5 (1.3%) patients were with CTAS 3 or less, while 395 (98.8%) were with CTAS 4 or 5.

Less than half of patients (n= 184; 46%) visited the ED on the first day from the start of the complaint while 173 patients (43.3%) came to ED during the first week and 43 patients (10.8%) came after 1 week from start of the complaint. Relatively few patients had chronic diseases (n= 35; 8.8%).

The decision to come to ED was made by referral from primary healthcare in only 11 patients (3.2%) whereas it was the patient's escort, or guardian in 325 patients (81.3%) who took that decision.

When patients' guardians/escorts were asked about their preference to visit ED as compared to primary health care, 255 of them (63.8%) answered that they preferred to visit the ED of the Children Hospital, only 81 (20.3%) answered that they usually preferred to visit

their primary healthcare centers before ED, 49 (12.3%) preferred to see a private physician, and 15 (3.8%) preferred to treat their children by over the counter medication without seeing any doctor until the child disease persisted.

When guardians were asked why their child was brought to ED, they reported the following arguments: 142 (35.5%) believed that their child's condition needed immediate attention, 77 (19.3%) saw that their child's condition was too complex to be seen by a primary health care provider and needed investigation that was not available in the primary health care setting while 130 (32.5%) did not know if the primary health care provider was available at the time of presenting to the ED. Almost two-thirds of them (n=270; 67.5%) knew that the primary health care

physicians were available, otherwise 71 (17.8%) reported that it was easier to come to ED.

The patient eligibility for visiting the ED according to the nurse classification of CTAS and those referred from primary healthcare were only 16; 4.0%) while 384 (96.0%) of the patients were not eligible. In the past year, most of the patients did not visit the primary health care provider (120; 30.0%) or only visited them 1-2 times (n=130; 32.5%). Meanwhile 72 cases (18.0%) visited the primary care centers 3-5 times and only 78 patients (19.5%) came more than that. In the past year also, 147 (36.8%) patients visited the ED more than 5 times and 94 (23.5%) visited the ED 3-5 times; meanwhile those who visited the ED 1-2 times

did not exceed 140 (35.0%). However, only 19 (4.8%) patients never visited ED in the last year.

Regarding factors associated with not eligible visiting of ER, all patients with respiratory system affection tended to illegally visit the ER compared to 96.1% of those with GIT affection, p=0.005. All children aged between 1 and 7 years compared to 90% of those aged 11 years were more likely to visit ER as non-urgent cases. The difference was borderline not significant, p=0.051. Other factors such as patient`s gender, parents` employment status, medical insurance and eligibility for treatment were not significantly associated with illegal visiting ER. Table 2

DISCUSSION

Overcrowding in the emergency department (ED) is associated with increased incidence of adverse outcomes, mortality as well as hospital costs[11]. In Saudi Arabia, increasing utilization of EDs by non-urgent cases is the leading cause of overcrowding [12]. Therefore this study was carried out to look for the causes of frequent overcrowding in the Emergency Department (ED) at the Children's Hospital inTaif city.

The present study showed that the majority of visitors to the (ED) were males, which was reported earlier for adults in the cities of Makkah and Al-Kharj, KSA [13, 14]. Unlike many studies [14,15], the afternoon shift appeared to be more crowded by visitors than other shifts which may explained in the light of the culture, when many patients had to wait their guardians after work hours to take them to the hospital.

This study was in-keeping with similar results reported earlier in Al Kharj city[14], where respiratory complaints were most common in ED. Only 17% of ED visitors had contacted their primary care health provider before ED visit which confirmed the results reported earlier in Riyadh city [15], and showed a lack of satisfaction in primary health care taking into consideration regional population growth or a lack of trust in their local general practitioners in primary health care centers. It was clear in this study that emergency cases (CTAS 1,2, and 3) all together represented 1.3%, while the non-urgent cases (CTAS 4 and 5) represented 98.7% , which was more in non-urgent cases than results recorded earlier in Jeddah and Riyadh, KSA [16,17]. Lack of satisfaction and trust in the primary health centers, or limited access may increase

the number of non- urgent cases that visit the ED which led to increased waiting time for urgent ceases. In the current study, the majority of guardians (63.8%) preferred to visit the ED first when their children needed medical care and their justification was in-keeping with those reported in several earlier studies [17-20] where many believed their children needed immediate attention and that they would gain rapid access to investigations, such as blood test, and X-rays etc, more than primary health care centers.

Based on our results we concluded that the main factor of overcrowding in Emergency Departments (ED) was lack of awareness and usage of Primary Health Care that lead to Emergency Departments (ED) overcrowding. We recommend that Ministry of Health start making

campaigns or any other procedures to aware the population about the rule of the primary health care centers in treating their children, and they can use our result as a base line to see if there is any significant change in population awareness after making campaigns or any other procedures.

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Table 1: Baseline and demographic data of patients and their guardians

Parameter	Number	Percentage
Patient`s gender		
Male	228	57.0
Females	172	43.0
Guardians `employment status		
Employed	225	63.7
Unemployed	145	36.3
Patient`s insurance		
Insured	22	5.5
Uninsured	378	94.5
Patients` eligible for free medical service	387	96.7
Patients` eligibility for treatment in	99	24.0

another hospital		
Patients` eligibility for Armed Forces Hospital	43	10.8
Patients `eligibility for Security Forces Hospital	38	9.5
Patients ‘eligibility for National Guard Hospital	18	4.5

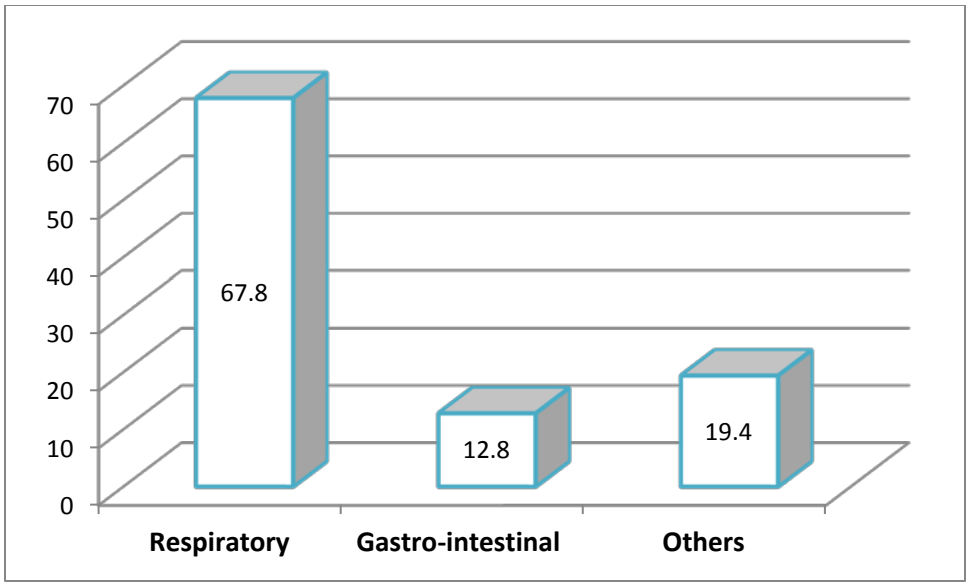

Figure 1: Patients` complaints at presentation.

Table 2: Factors associated with non-urgent visits to the Emergency Department

	Non-urgent cases N=395 N (%)	Urgent cases N=5 N (%)	p-value
Patient`s gender			
Male (n=228)	225 (98.7)	3 (1.3)	
Female (n=172)	170 (98.8)	2 (1.2)	0.630**
Patient`s age (years)			
<1 (n=59)	58 (98.3)	1 (1.7)	
1-2 (n=54)	54 (100)	0 (0.0)	
>2-5 (n=100)	100 (100)	0 (0.0)	
>5-7 (n=67)	67 (100)	0 (0.0)	
>7-11 (n=110)	107 (97.3)	3 (2.7)	
>11-13 (n=10)	9 (90.0)	1 (10.0)	0.051*
Parents` employment status			
Employed (n=255)	251 (98.4)	4 (1.6)	
Not employed (n=145)	144 (99.3)	1 (0.7)	0.404**
Medical insurance			
Insured (n=22)	22 (100)	0 (0.0)	
Not insured (n=378)	373 (98.7)	5 (1.3)	0.753**
Eligibility for treatment			

National Guard hospital (n=18)	17 (94.4)	1 (5.6)	
Security Forces hospital (n=38)	37 (97.4)	1 (2.6)	
Armed Forces hospital (n=43)	43 (100)	0 (0.0)	
Others (n=13)	13 (100)	0 (0.0)	
No (n=288	285 (99.0)	3 (1.0)	0.393*
System involved			
GIT (n=51)	49 (96.1)	2 (3.9)	
Respiratory (n=271)	271 (100)	0 (0.0)	
Others (n=78)	75 (96.2)	3 (3.8)	0.005*

***Chi-square test** ****Fischer exact test**