

Patterns of Ocular emergencies: A prospective study from Al Ahsa, Saudi Arabia.

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Abstract-

Background: To demonstrate the characteristics and patterns of patients attend to ophthalmology emergency department at a tertiary hospital in the city of AlAhsa, Saudi Arabia.

Methods and materials: A survey designed to collect data prospectively through an interview involved patients' data such age, sex, level of education, residential address, reason to attend, diagnosis in ophthalmology emergency service of the department of ophthalmology of AlJaber Hospital.

Results: A total number of 1,000 patients were analyzed in the study. Forty-five percent of the patients were female and 55% male, 68% are living in cities and 81% had not visit the department previously. Furthermore, 21% of cases were injuries, 27% were infections, and 41% due to other ocular causes rather than trauma or serious

Conclusion: most of the conditions categorized as non-serious cases followed by infections which could be managed in OPD or by general physicians at PHC.

Index terms: Ocular, emergency, patterns.

INTRODUCTION

The World Health Organization (WHO) Program for the Prevention of Blindness reported tremendous statistics of ocular emergencies worldwide and trauma-related ocular injuries are considered as the most common cause. Besides trauma-related injuries; foreign bodies and corneal abrasion consider as frequent causes to develop ocular emergencies and other eye emergencies such as closed-angle

glaucoma which reflect high importance. [1] Visual outcomes will differ significantly by prompt recognition and provide treatment in the appropriate time. [2]

Nevertheless, patterns of ocular emergencies are different from region to region even among same country due to presence of differences of environmental, occupational and life-

style factors among people. [3] A study from Riyadh, Saudi Arabia found that ophthalmic cases presenting to the A&E were non-emergent and could be handled by outpatient clinics. [4] Further, another recent study has been done in Al-Madinah found that most of the cases seen at the ophthalmic A&E at Ohud Hospital were non-emergent. [5] Similar study was conducted in Brazil at Ophthalmological emergency service of the Santa Casa of Sobral found that ocular trauma, followed by infections, were the most frequent etiologies with indication of inappropriate use of services in the department. [3] Similar findings were reported by studies done in Nigeria, Egypt, Iran and India. [6] This study is conducted as there was no such studies have been done in Al-Ahsa region to identify patterns of ocular cases presenting to ophthalmology emergency department and to investigate whether such cases attending are urgent or not. As gaining of such knowledge would insure proper use of emergency facilities in the department and provide appropriate management measures as most of them are preventable.

Aim: To determine patterns of ocular emergencies in patients presenting to the emergency department of Al Jaber eye& ENT hospital in Al-Ahsa Eastern province, Saudi Arabia.

METHODS AND MATERIALS

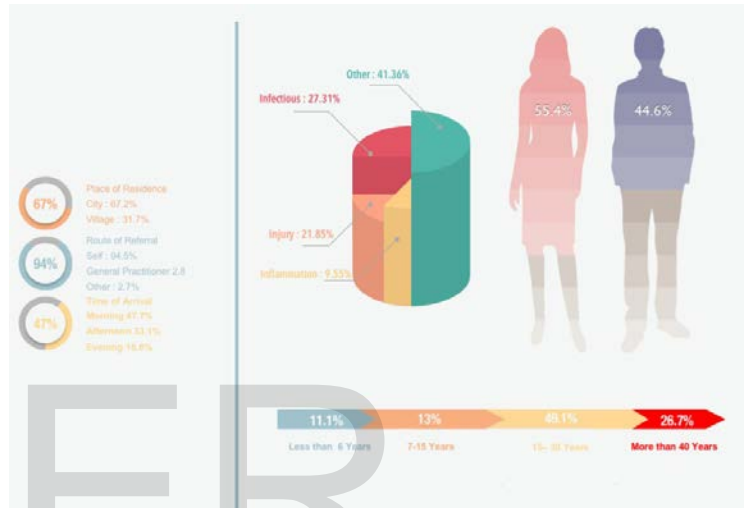
A cross-sectional study carried out during the period between May to September 2017 by ophthalmology residents attended the emergency department and recorded all require information in the given forms. All patients attending to ophthalmology emergency department at Al Jaber eye and ENT hospital in Al-Ahsa, Kingdom of Saudi Arabia. Number of patients collected was 1000 patients to be able of determining the patterns. Importantly, Al Jaber Hospital in Al Ahsa, Saudi Arabia, is a specialized center for Eye and Ear, Nose and Throat that emergency department serves Al Ahsa region.

An interviewer-administrated questionnaire used to collect data from all the patients who attended to emergency department during the study period. The questionnaire composed of patient demographic data including: patient age, gender, level of education, residential address, average distance to the service department, time between the initial symptoms and first visit to the hospital. Also, detailed history taking regarding ocular complaints including source of referral, presenting complain, site of medical evaluation indication, diagnosis, and veracity of emergency indication, history of previous attendance and history of ocular surgeries, decision taken regarding complaint, treatment and discharge plan. Demographic information including age and sex and details about the eye-related complaints and other variables such as involved eye, reasons for patient referral, their activity at the time of injury (if any), previous history of ophthalmic disorders or eye injuries, history of ophthalmic surgery, the use of eye protection, and need for hospitalization was filled in the questionnaire. For non-traumatic causes of patient referral, a single diagnostic term was assigned that could explain the condition the best.

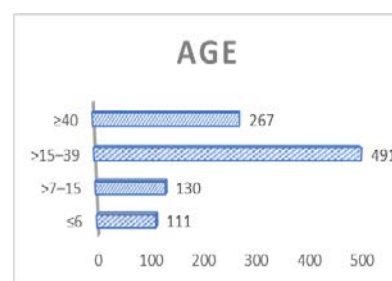
This also applied for patients who were referred with a non-urgent condition such as refractive errors or cataracts. Each subject for the study received a thorough explanation for everything and informed consent was taken. Involving in the study was voluntary but participation was demonstrated to help of improving the quality of the provided healthcare. Data analyzed in SPSS version 23 (SPSS Inc., Chicago, IL, USA). Frequencies and percentages applied for all variables.

RESULTS

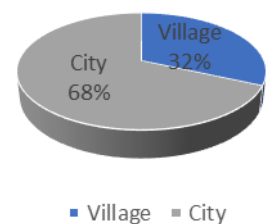
A total of 1000 patient attended to the emergency department, data analysis provided in the infographics. Furthermore, a re-



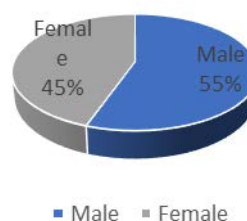
markable statistical difference which shown correlation between groups in diagnosis category and socio-demographic data as shown in **Table (3)** as (*P Value*) less than (0.05).



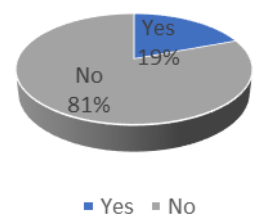
Place of Residence



Gender



Pervious Attendance



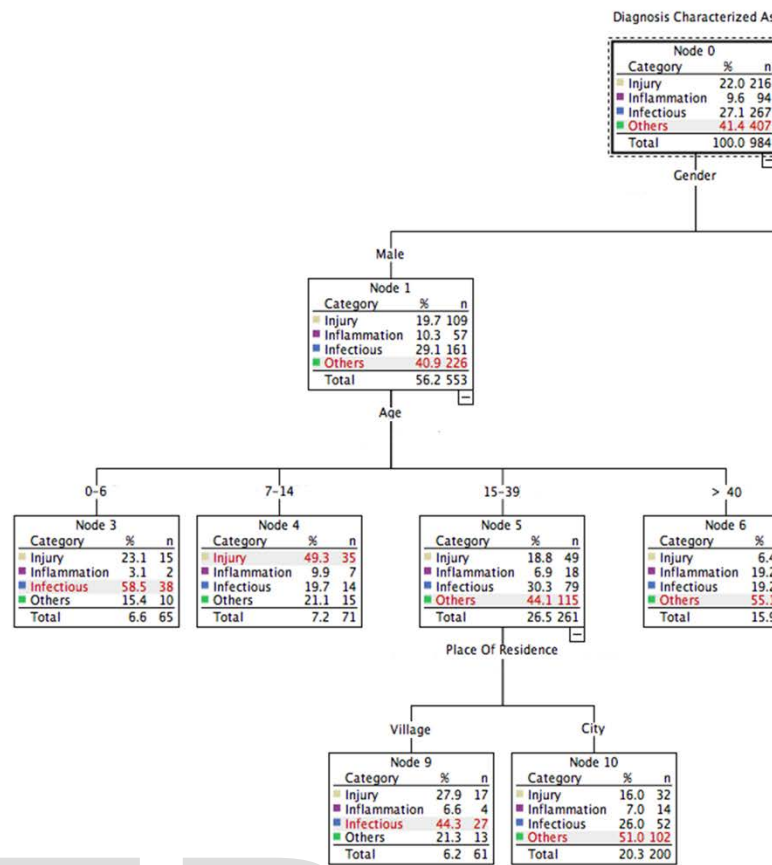
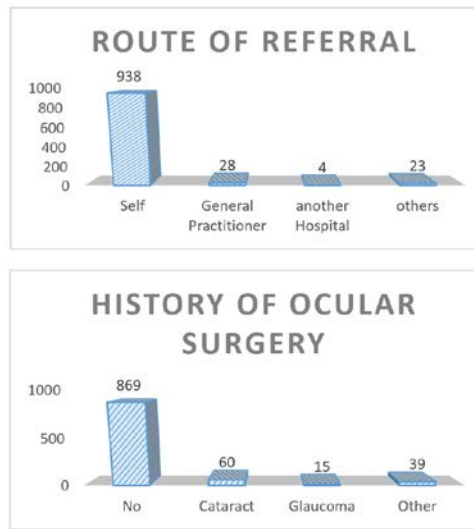


Table (3). Socio-demographic data and diagnosis category.

PARAMETERS	Injury	Inflammation	Infectious	Others	p Value
GENDER					
MALE	109(19.7)	57(10.3)	161(29.1)	226(40.9)	0.136
FEMALE	107(24.8)	37(8.6)	106(8.6)	181(42.0)	
AGE					
<7	31(27.9)	2(1.8)	52(46.8)	26(23.4)	0.001
7-14	72(54.5)	12(9.1)	19(14.4)	29(22.0)	
15-39	89(18.7)	42(8.8)	139(29.1)	207(43.4)	
>40	23(8.7)	38(14.4)	57(27.7)	145(55.1)	
PLACE OF RESIDENCE					
VILLAGE	65(21.0)	20(6.5)	110(35.6)	114(36.9)	0.001
CITY	145(21.7)	74(11.1)	157(23.5)	292(43.7)	
EDUCATION					
ILLITERATE	57(25.3)	15(6.7)	65(28.9)	88(39.1)	0.071
PRIMARY OR INTERMEDIATE	53(25.5)	27(13)	46(22.1)	82(39.4)	
SECONDARY SCHOOL	42(16.7)	28(11.1)	66(26.2)	116(46)	
HIGHER EDUCATION	51(19.5)	23(8.8)	76(29)	112(42.7)	
ROUTE OF REFFERAL					
SELF	199(21.6)	77(8.3)	259(28.1)	388(42)	0.001
GP	8(28.6)	7(25)	1(3.6)	12(24.9)	
ANOTHER HOSPITAL	4(14.8)	10(37)	7(25.9)	6(22.2)	
TIME OF ARRIVAL					
MORNING	82(17.2)	67(14)	130(27.3)	198(41.5)	0.001
AFTERNOON	91(28.8)	22(7)	81(25.6)	122(38.6)	
EVENING	43(22.9)	5(2.7)	56(29.8)	84(44.7)	
PREVIOUS ATTENDANCE					
YES	17(9.6)	33(18.6)	50(28.2)	77(43.5)	0.001
NO	197(24.5)	61(7.6)	217(27)	328(40.8)	

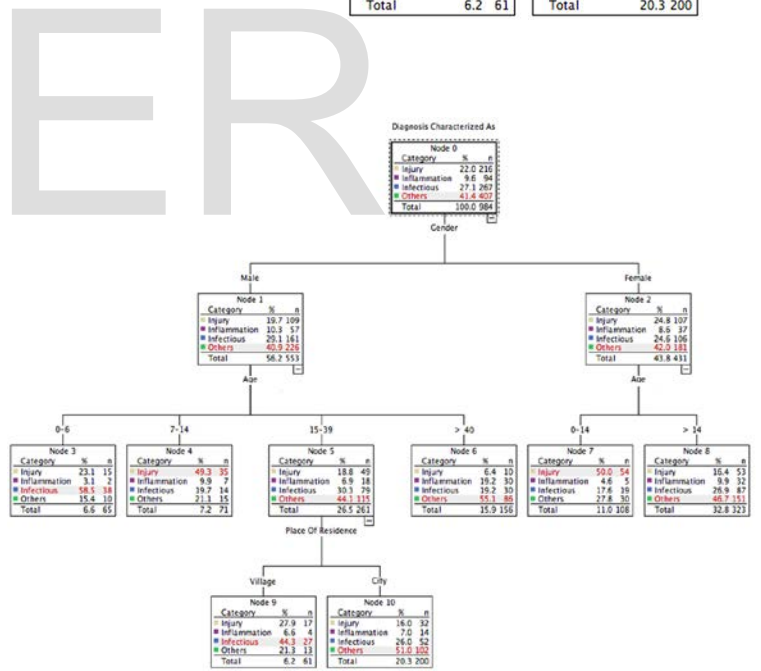


Table (2).

	NUMBER OF PATIENTS (N=1000) (%)
• <u>DIAGNOSIS CHARACTERIZED AS</u>	
INJURY	215(21.8)
INFLAMMATION	94(9.6)
INFECTIOUS	267(27.1)
OTHERS	407(41.4)
• <u>DIAGNOSIS GROUP AS</u>	
SERIOUS	98(9.9)
NON-SERIOUS	891(89.6)
• <u>DECISION TAKEN</u>	
DISCHARGED	732(73.7)
FOLLOW-UP	69(6.9)
REFERRED TO OUT-PATIENT	157(15.8)
ADMITTED	26(2.6)
• <u>PRESENTING COMPLAINTS</u>	
PAIN	128(12.8)
REDNESS	88(8.8)
SWELLING PAIN	90(9)
PAIN, REDNESS AND SWELLING	259(26)
TEARING	70(7)
DECREASED VISION	91(9.1)
• <u>COMPLAINTS OCCURS IN</u>	
WORK PLACE	167(16.9)
HOME	711(72)
ASSAULT	24(2.4)
OTHERS	58(5.9)
• <u>DIAGNOSIS TRAUMA CLOSED IN-JURY</u>	
CORNEAL FOREIGN BODY	13(6.3)
OCULAR CONTUSION	3(1.4)
CORNEAL ABRASION	145(70)
LACERATION OF CONJUNCTIVA	5(2.4)
TRAUMATIC UVEITIS	10(4.8)
CHEMICAL INJURY	5(2.4)
• <u>INFECTIONS</u>	
VIRAL CONJUNCTIVITIS	154(46)
ALLERGIC CONJUNCTIVITIS	21(6.3)
CONJUNCTIVITIS SICCA	7(2.1)
BACTERIAL CONJUNCTIVITIS	54(16.1)
UVEITIS	28(8.4)
ACUTE DACRYOCYSTITIS / CHALAZION	19(5.7)
• <u>NON EMERGENCY ROOM CASES</u>	
REFILL MEDICATION	5(0.6)
DRYNESS	200(22.7)
SUPERFICIAL PUNCTATE KERATITIS	7(0.8)
CATARACT	18(2)
REFRACTIVE ERROR	49(5.5)
OTHERS	577(65.3)
• <u>FOLLOW UP CASES</u>	
CORNEAL ABRASION	29(3.3)
GLAUCOMA	3(0.3)
DIABETIC RETINOPATHY	1(0.1)
CHALAZION	47(5.3)
UVEITIS	12(1.4)
OTHER	771(87.6)

DISCUSSION

Studies investigate the proper visits of emergency department varied of being between 5% to 82% (7-8). The reason beyond this variation is absence of standard criteria or protocol to assess appropriate attendance. Few studies described the perception of physician (9) Patients who live far from the hospital tend to use it as a tertiary hospital and are referred to the hospital from other medical facilities.

55.4% of patients were female and 66.6% were males. Furthermore, etiologies for visiting were non-serious causes for 41.36%, infectious causes 27.31% and 21.85% for injuries. Regarding place of residency 67.2% of patients were living in cities and 31.7% in village. Ninety-five of patients attend without referral while 2.8% referred from GP. According to the analysis of data 47.7% of patients attended at the morning and 33.1% at afternoon. Most of patients (491 out of 1000) were between age of 15-39 years old and 267 above age of 40s. In addition, 263 of patients have a high degree of education. Characteristics of diagnoses as provided in (Table 2) shown that 891 of patients had non-serious conditions. The reasons were other than trauma or injury for 407 patients and 215 for injury causes, for infections was 267 cases. Analysis of presenting complaints was 259 patients had pain. Redness and swelling and 128 patients had only pain as a main presenting complaint. Ninety-one of patients had decreased vision, 150 patients for itching as reasons for their visits. Also, 711 of patients had their symptoms at home and 732 of patients discharged as they had simple resolution.

As analysis for infectious reasons, viral infections were the most as 154 patients presented for that reason. However, two hundred patients presented as non-urgent cases.

According to making decision tree analysis (Part 2) demonstrated that If we had a Male patient and his Age was less than 6 years, he would have Infectious cause for attendance but If we had a Male patient and his Age was between 7-14 years and a Female patient and her Age was between 1-14 years, they would have an eye Injury. Furthermore, If we had a Male patient and his Age was between 15-39 years and a Female patient and her Age over 14 years, they would have uncommon cause.

A: If he is a Resident of the Village, he would have an Infectious cause.

B: If he is a Resident of the City, he would have other causative complaint.

In a prospective survey over a 3 month period from the emergency service of a large tertiary hospital in Singapore conducted by Voon et al (10) found that trauma cases represented 52.9% of all cases. It is noticeable that Inappropriate ophthalmological emergency service use was higher among those with higher income as payment was provided for unnecessary visits (11, 12). Inappropriate emergency department use is a common problem in various parts of the world which results in decreased of quality of care provided, inappropriate utilization of resources, and increased the burden on the staff (11, 12).

CONCLUSION

To know the pattern of emergency is important to set new policies for effective actions to treat and allocate resources. Final results of this study have shown that there is a need to implant a strict policy to avoid mis-use of resources provided in the emergency department of the hospital. The results of our study revealed that other causes which is not serious was the most common cause for attending followed by infection. This clarify the inappropriate use of facilities provided ER department. Further studies should be done to determine the exact impact of such a situation on the emergency department staff and institution.

CONFLICT OF INTERESTS: No conflict of interests declared by authors to publish this study.

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