

Original Article

Management of traumatic corneal abrasion by a sample of practicing ophthalmologists in Saudi Arabia

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Abstract

Purpose: Corneal epithelial defect (CED) is a common medical emergency condition involving loss of surface epithelial layer of the cornea. The aim of the study is to explore the practice patterns of ophthalmologists in management of traumatic CED in Saudi Arabia and to assess the variance in clinical practice from the established clinical practice guidelines.

Methods: A Survey based study at King Abdulaziz University Hospital between March 2015 and January 2016. A survey of 16 relevant closed ended questions was distributed to 300 practicing ophthalmologists including Saudi Ophthalmology Society (SOS) members and non-members. The survey questionnaire focused on the known aspects of traumatic CED management.

Results: 188 practicing ophthalmologists responded to the distributed questionnaire. That represents a 63% response rate for the present survey study. The age group most commonly affected by traumatic CED is 6–18 years old (61.2%). Fingernail trauma (n = 129, 68.6%) was the major cause of CED reported by respondents. In large CED (>5 mm) most common modality of treatment is pressure patching with topical antibiotics with or without cycloplegics (40.4%) whereas in small CED (<2 mm) topical antibiotics and cycloplegics is the preferred way (40.4%). The most commonly used prophylactic antibiotic was second-generation fluoroquinolons (58.5%).

Conclusions: Present study demonstrates that practicing ophthalmologists are reporting that traumatic CED mostly affects young people and fingernail trauma is the major cause. There is lack of clear institutional guidelines and consensus on the management of traumatic corneal abrasions.

Keywords: Corneal abrasion, Corneal epithelial defect, Ophthalmologist, Fingernail trauma, Antibiotic, Cycloplegic

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Introduction

Corneal epithelial defect, (CED) also known as corneal abrasion, is defined as loss of the surface epithelial layer of the cornea. Approximately 10% of the visits to eye emergency unit are having CED.¹ In a study done by Alotaibi et al. 19.6% (277 patients out of 1422) of patients who visited ophthalmology emergency department in Riyadh, Saudi Arabia in one month were found to have traumatic CED.² It

is also reported that CED is a common medical condition that is frequently encountered by primary care physician and is a major cause of referral to Ophthalmologist.³ CED is characterized by acute ocular pain, tearing, red eye, blurred vision, and photophobia that affect patients' quality of life.⁴ Although it is usually healed with no visual sequels, ocular complications may happen including corneal ulcer, scarring, and melting specially if not correctly managed.⁵ Cycloplegics, topical non-steroidal anti-inflammatory drugs

Received 25 December 2016; received in revised form 19 October 2017; accepted 25 October 2017; available online xxxx.

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Peer review under responsibility of Saudi Ophthalmological Society, King Saud University



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(NSAIDs), eye patches and topical antibiotics are reported modalities of treatment.⁶ However, there exists variability in the amount of evidence supporting any of these modalities.

In a study done in UK, British investigators found that there is variability in CED management among practicing ophthalmologists.⁷ Similarly there is lack of consensus on the treatment of traumatic corneal abrasions among Canadian emergency physicians.⁸ It is not known whether similar variability exists in practicing ophthalmologists in Saudi Arabia. Our objective was to study the corneal abrasion management practices among Saudi ophthalmologists. Our hypothesis was that we would find variability in traumatic CED management, and if there is need for clear standard guidelines for treating these cases and future randomized controlled trials defining effective treatment methods.

Methodology

Study design: A survey based study for the management of traumatic corneal abrasion.

Place of study: Departments of Ophthalmology, King Abdul-Aziz University Hospital, Riyadh, Saudi Arabia between March 2015 and January 2016. Ethical approval was provided by the King Saud University Institutional Review Board (15/0083/IRB).

Methods

After conducting pilot testing on a sample of practicing ophthalmologists, sixteen relevant closed ended questions survey were distributed to 300 practicing ophthalmologists, including Saudi Ophthalmology Society (SOS) members and non-members. The survey questionnaire focused on the known aspects of traumatic CED management. We used both web based and hard copy questionnaires to conduct the study for 3 months from March 2015 to April 2015. The survey was conducted to determine cause, diagnosis, and management of CED by the Ophthalmologists. The questions were based on general information, evaluation and specific management.

Data analysis

In the present study, the data was analyzed using Excel 2007. Data was sorted based on similarity and matching. Further, grouped data was presented as diagram/histogram. Data was also presented in table format using word pad 2007.

Results

The response rate was 188 of 300 (response rate is 63%) which is in line with the previous average response rate of 64% in the literature.⁹ Among the various grade of professionals involved in the present survey management study, 68 (36.2%) Ophthalmology consultants, 30 (16.0%) Ophthalmology fellow or specialists and 67 (35.6%) ophthalmology residents and others 23 (12.2%) that included registrars, senior registrars and service residents.

In regards to type of practice, 164 (87.2%) responders were practicing at tertiary care eye hospitals and 24 (12.8%) were practicing in general hospital or private clinics.

The evidence based clinical practice was adopted by the highest number of the Ophthalmologists (n = 83, 45.10%) followed by personal knowledge (n = 68, 36.95%), written guidelines in the institution (n = 22, 11.95%), instruction from senior staff (n = 12, 6.52%) respectively as shown in Fig. 1. The data analysis for the cause of CED indicated that fingernail trauma (n = 126, 68.47%) was the major cause followed by contact lens trauma and the commonest age group (n = 140, 75.6%) affected by traumatic CED is less than 18 years old (Table 1).

One hundred and fifty-five (82.4%) practicing ophthalmologists highly depended on the size of abrasion in choosing the way of managing traumatic CED. Upon stratification of data on the size of the CED i.e. small (>2 mm), medium (2–5 mm) and large (>5 mm) size of CED, the most common treatment approach was topical antibiotic and cycloplegic eye drop for all the three sizes of CED. Eye pressure patching with topical antibiotic with or without cycloplegic eye drop were the first choice for treatment in the large CED Fig. 2. Whereas, in the small CED, topical antibiotics and cycloplegic eye drops was the first choice of treatment. In terms of the management approach taken by professional status; contact lens use was preferred by consultants in comparison with in-training ophthalmologists (13 Vs 5). Moreover, usage of topical antibiotics and cycloplegic eye drops was more common in ophthalmologists in-training group Fig. 3.

The most commonly used prophylactic antibiotics were second generation fluoroquinolones (n = 110, 58.5%) Table 1. Fifty-seven practising ophthalmologist (30.3%) never prescribe NSAIDs for CED patients.

Discussion

Physician surveys are an important tool to assess attitudes, beliefs and different management strategies especially when clear evidence based practice is lacking. Corneal abrasion accounts for a significant proportion of the ophthalmic workload of most emergency departments. In the present survey study, most responses came from Ophthalmologists practicing at tertiary care eye center (87.2%) where different levels of practicing physicians may encounter those patients. This increases the importance of exploration of practice at these hospitals especially the common daily practice. Also, the age group most commonly affected by this type of trauma is young age group (<18 years of age) in our survey study. This is in agreement with previous reports which suggested that this age group is the group most likely to be affected in the various populations.^{6,10,11} This is another important reason to consider while standardizing the care since those patients are in their early life and mismanagement may result in poor outcome which impacts the patients themselves and the community. Our survey study revealed that fingernail trauma is the major cause of CED in Saudi Arabia population. This is corroborated with similar studies in American population where Fingernail-induced CED was one of the most common causes for eye injuries.^{12,13} This type of trauma is a known risk for fungal corneal ulcer which should be kept in mind in following those patients.

Corneal abrasion is also a common problem encountered by physicians in general emergency departments and in primary care practices. Treatment recommendations vary and include the use of topical antibiotics, cycloplegic drops, and

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