Profile of Ocular Emergencies in a Tertiary Health Centre

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Abstract:
A cross-sectional study was carried out to determine the incidence, types and pattern of presentation of ocular emergency in a tertiary eye care centre. Demography characteristics, medical history, presenting visual acuity and diagnosis of all patients managed as ocular emergencies were obtained from their hospital records. Three hundred and eight ocular emergencies constituting 10.1% of the total new cases seen were studied. The mean age was 30.7±21.5 years. Non-traumatic conditions constituted 57.5% of the cases seen with keratitis and conjunctivitis as the leading diagnosis. Majority (87%) presented after 24 hours of onset of symptoms with traumatic cases having a greater odd of presentation within 24 hours. A total of 33.4% of the cases were blind in the affected eye at the time of presentation. Ocular emergencies still have a relatively large share of eye conditions in Ekiti with majority of patients having late presentation. One of every three emergencies had monocular blindness in the affected eye at presentation. We recommend an integration of primary eye care into primary health care in Ekiti to minimise ocular morbidity in emergencies. Health education is needed to reduce risk of infections and inflammations by improved ocular hygiene and wearing of protective eye devices.

KEY WORDS: Ocular, Emergency, Ekiti, Monocular, Blindness

I. INTRODUCTION

Ocular emergencies are conditions that require urgent medical attention to avert permanent visual impairment. They have a major share in various ocular diseases and are associated with high risk of complications.1 Although the definitions of urgency for medical attention may vary from one region to another, the most common definitions of level of urgency documented are: immediate (within one to two hours); urgent (within 24 hours); and semi-urgent (within a week).2 Categorising patients into level of urgency helps to initiate appropriate care, counselling and timely referral.2 Successful patient outcomes in instances of emergencies depend on prompt recognition as well as appropriate initial management and/or referral.2 Careful examination and appropriate treatment are important to minimise the occurrence of poor visual prognosis and vision loss or blindness.2,3 Even when vision loss or blindness do not occur, cosmetic blemish may occur if prompt actions are not taken. The causes of ocular emergencies vary from traumatic injuries, chemical injuries, inflammation to neurovascular conditions. Timing is critical especially in chemical injury as the potential for damage gets greater with longer exposure.4 Inadequate safety measures at work places, lack of adequate care facilities and delay in presentation are some of the inferred factors for poor outcome of some ocular emergencies in developing countries.3 An established ophthalmic emergency unit is a cheap and efficient way to diagnose and care for eye emergencies7 as well as provide assistance to patients with eye diseases whose morbidity or complications might be aggravated by a delay in receiving proper management.8 Ekiti state like most states in Nigeria have primary health care facilities that are not adequately equipped for primary eye care delivery hence many patients have to get to the tertiary health institution for care.9 The findings of this study will therefore give a hospital-based representation of the types, incidence and pattern of presentation of ocular emergencies in Ekiti. It will also assist in the planning of ways of improving emergency eye care as well as help in health education towards avoidance and reduction of morbidities from ocular emergencies as a whole.

II. METHODS

Ophthalmology Department of Ekiti State Tertiary Centre provides 24 hours emergency services including micro surgical services whenever necessary to all presenting patients. This study was carried out in line with the ethical standards according to the Helsinki Declaration of 1975 as revised in 1983. Records and history of all patients who presented with emergency eye conditions in this facility from January 2013 to July 2015 were reviewed. Information included demographic characteristics, duration of symptoms before presentation, laterality of ocular ailment, self-medication, presenting visual acuity and diagnosis. WHO guideline was used to grade the visual acuity with ≥6/18 as normal, <6/18 to >3/60 as visual impairment and <3/60 to no light perception as blindness. Infants were classified as either blind or believed not to be blind. Clinical records with insufficient data were excluded.

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Data obtained were recorded and analysed using Statistical Package for Social Sciences (SPSS) version 20. Means (Standard deviations) were used to describe the distributions of continuous variables. Categorical variables were described in Percentages. Comparisons of categorical data were performed with the use of Pearson’s chi-square test. For continuous data Student’s-t test was used to compare means. Correlation between two variables was performed by Pearson’s correlation co-efficient ‘r’. P < 0.05 was considered statistically significant.

### III. Results

A total of three hundred and eight ocular emergencies were seen during this period. This constituted 10.08% (308) of the 3053 new cases seen. One hundred and ninety five (63.3%) were males while 113 (36.7%) were females with a male: female ratio of 1.7:1. The ages ranged from 2months to 103years with mean age of 30.67±21.53years. (Figure1) Majority of the patients 249(80.1%) were aged less less 50years. Males constituted 67.1% (167) of them. Males consistently outnumbered the females across all age groups except in those above 60years of age.

“TABLE1” Only 37(12.01%) presented within 24hours of onset of eye complaints. Twenty six of these 26/37 (70.3%) were traumatic eye emergency. The remaining 11/37 (29.7%) were non traumatic eye injuries. (x² =13.576,df=1,p = 0.001 OR= 3.92 (CI: 1.856-8.262 ). Another 31(10.1%) of all presented between 24-48hours of eye symptoms.

Majority of the cases were uniocular 268/308 (87%) with the left being the affected eye in139 cases (45.1%) and the right eye in 129 cases (41.9%). The remaining 40 (13%) were binocular. Males consistently outnumbered females in ocular emergency (X²=14.273,df=1,p value<0.001 OR=1.692 CI: 1.046-2.737) “Figure2”

One hundred and three (33.4%) presented with monocular blindness while 11.36% had visual impairment at presentation. Most (112/138) 81.2% of those with visual impairment and blindness in the affected eye presented after 72 hours of the onset of eye complaints. “TABLE 2” Non traumatic conditions like infections and inflammations constituted 57.5% of the cases seen with keratitis and conjunctivitis as the leading diagnosis. Eyelid injuries topped the list of traumatic ocular conditions “TABLE 3” About 2/3rd of the patients did not apply any self prescribed medication before presentation at the hospital. Majority of the patients that had used self medication utilised inappropriate medications. “Fig 3”

### IV. FIGURES AND TABLES

![Figure 1: age and sex distribution](image-url)
Figure 2: Gender versus types of ocular emergency

Figure 3: Self medication practice

**TABLE 1**: Duration of eye complaints before presentation versus type of ocular emergency

<table>
<thead>
<tr>
<th>DURATION</th>
<th>TRAUMATIC (n)</th>
<th>TYPES OF OCULAR EMERGENCY</th>
<th>TOTAL (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>WITHIN 24HRS</td>
<td>26</td>
<td>11</td>
<td>37</td>
</tr>
<tr>
<td>&gt;24HOURS-48HRS</td>
<td>19</td>
<td>12</td>
<td>31</td>
</tr>
<tr>
<td>&gt;72HOURS-7DAYS</td>
<td>41</td>
<td>82</td>
<td>123</td>
</tr>
<tr>
<td>&gt;7DAYS</td>
<td>42</td>
<td>75</td>
<td>117</td>
</tr>
<tr>
<td>TOTAL</td>
<td>128</td>
<td>180</td>
<td>308</td>
</tr>
</tbody>
</table>

**TABLE 2**: Presenting vision versus duration of ocular emergency

<table>
<thead>
<tr>
<th>VA OF AFFECTED EYE</th>
<th>WITHIN 24HRS</th>
<th>&gt;24-48HRS</th>
<th>&gt;72HRS</th>
<th>&gt;7DAYS</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥6/18 (NORMAL)</td>
<td>21</td>
<td>20</td>
<td>70</td>
<td>56</td>
<td>167</td>
</tr>
<tr>
<td>&lt;6/18-3/60 (VI*)</td>
<td>3</td>
<td>3</td>
<td>15</td>
<td>14</td>
<td>35</td>
</tr>
<tr>
<td>&lt;3/60 (BLIND)</td>
<td>12</td>
<td>8</td>
<td>38</td>
<td>45</td>
<td>103</td>
</tr>
<tr>
<td>BNB**</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>TOTAL</td>
<td>37</td>
<td>31</td>
<td>123</td>
<td>117</td>
<td>308</td>
</tr>
</tbody>
</table>

*VI - Visual impairment, ** BNB - Believed not to be blind

**TABLE 3**: Diagnosis of ocular emergency

<table>
<thead>
<tr>
<th>NON-TRAUMATIC</th>
<th>TRAUMATIC</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>n (%)</td>
<td>n (%)</td>
<td></td>
</tr>
<tr>
<td>KERATITS</td>
<td>59 (33.3)</td>
<td>14 (10.7)</td>
</tr>
<tr>
<td>CONJUNCTIVITIS</td>
<td>49 (27.7)</td>
<td>24 (18.3)</td>
</tr>
<tr>
<td>UVEITIS</td>
<td>30 (16.9)</td>
<td>36 (27.5)</td>
</tr>
<tr>
<td>ORBITAL CELLULITIS</td>
<td>20 (11.3)</td>
<td>22 (16.8)</td>
</tr>
<tr>
<td>GLAUCOMA(AACG*)</td>
<td>10 (5.6)</td>
<td>16 (12.2)</td>
</tr>
<tr>
<td>PANOPHTHALMITIS</td>
<td>5 (2.8)</td>
<td>9 (6.9)</td>
</tr>
<tr>
<td>INFLAMED PTERYGIUM</td>
<td>2 (1.1)</td>
<td>8 (6.1)</td>
</tr>
<tr>
<td>RETINOBLASTOMA</td>
<td>1 (0.6)</td>
<td>1 (0.8)</td>
</tr>
<tr>
<td>3RD NERVE Palsy</td>
<td>1 (0.6)</td>
<td>177</td>
</tr>
</tbody>
</table>

*AACG - ACUTE ANGLE CLOSURE GLAUCOMA*
V. Discussion

Ocular emergencies constituted about 10% of the total new cases seen in our health facility during the study period. A study of ophthalmic emergencies in Benin city reported a 1.1% prevalence among total emergency cases at the hospital. This makes comparison with our results difficult. Majority (80.1%) were less than 50 years old. This constitutes the active group in our society. A similar report was made by May et al where 85% of patients admitted to Emergency ophthalmic unit were less than 30 years old. Other studies in south west Nigeria reported 70% aged less than 40 years and 84.3% aged 50 years and below. The fact that about 1/3 (34.4%) of the emergency cases were aged below 19 years (Children and adolescents) also calls for attention. This age group have been said to be at high risk of injuries due to unsupervised play in school and at home.

There were more males than females. Males were at greater risk of having ocular emergencies than females (OR =1.692 CI: 1.046-2.737). Several previous reports indicated that there is greater involvement of men in traumatic eye injuries and other ocular emergencies when compared with their female counterparts. The reason given includes greater involvement of men in activities that expose them to risk of trauma and other emergencies. Resnikoff et al however opined that it may be due to a greater likelihood among men to seek eye care more than women.

Although about two-thirds of these patients did not resort to self-medication, the few that did utilised various inappropriate eye medications. A previous study at the same centre among our ophthalmic patients reported approximately 90% rate of inappropriate self-medication practice.

Majority presented to the emergency department after 24hours. Only 12.01% presented within 24 hours of onset of eye complaints. Strikingly 123 (89.1%) of those cases with visual impairment and blindness in the affected eye presented after 24 hours. Ordinarily emergency eye diseases should necessitate prompt presentation for diagnosis and management. This is often understandably so because patients are anxious about their vision and threat of vision loss. However the contrary findings in this study should call for more research to find out reasons for the delay in presentation. Foreign and local studies have also observed late presentation amongst traumatic and non-traumatic ocular emergencies. Some studies have revealed some barriers to timely utilization of eye care services to include distance to hospital, socio-cultural beliefs and practices. Dawodu et al in Benin city stated the dearth of eye care professionals and primary eye care professionals in the rural communities as reasons for late presentation among emergencies. A study by Omolase et al proposed proximity to the eye centre as a possible reason for a significant proportion of their patients reporting within 24 hours of onset of eye complaints. The farthest distance from our eye-care facility within the state is about 60km. Although this may sound like a short distance; other factors like poor state of some roads and other reasons which may include lack of finances, high cost of treatment, ignorance and lack of awareness of the eye care facility may also make early presentation at an eye care facility more difficult than it appears. Removal of these various barriers or minimizing them has been documented to contribute to global elimination of avoidable blindness. We however observed a statistically significant earlier presentation among the traumatic eye injuries when compared with the non-traumatic emergencies (Odds ratio=3.916 CI: 1.856-8.262, P <0.001).

There was a high rate of inappropriate eye medications. A previous study at the same centre among our ophthalmic patients reported approximately 90% rate of inappropriate self-medication practice. Majority presented to the emergency department after 24 hours. Only 12.01% presented within 24 hours of onset of eye complaints. Strikingly 123 (89.1%) of those cases with visual impairment and blindness in the affected eye presented after 24 hours. Ordinarily emergency eye diseases should necessitate prompt presentation for diagnosis and management. This is often understandably so because patients are anxious about their vision and threat of vision loss. However the contrary findings in this study should call for more research to find out reasons for the delay in presentation. Foreign and local studies have also observed late presentation amongst traumatic and non-traumatic ocular emergencies. Some studies have revealed some barriers to timely utilization of eye care services to include distance to hospital, socio-cultural beliefs and practices. Dawodu et al in Benin city stated the dearth of eye care professionals and primary eye care professionals in the rural communities as reasons for late presentation among emergencies. A study by Omolase et al proposed proximity to the eye centre as a possible reason for a significant proportion of their patients reporting within 24 hours of onset of eye complaints. The farthest distance from our eye-care facility within the state is about 60km. Although this may sound like a short distance; other factors like poor state of some roads and other reasons which may include lack of finances, high cost of treatment, ignorance and lack of awareness of the eye care facility may also make early presentation at an eye care facility more difficult than it appears. Removal of these various barriers or minimizing them has been documented to contribute to global elimination of avoidable blindness. We however observed a statistically significant earlier presentation among the traumatic eye injuries when compared with the non-traumatic emergencies (Odds ratio=3.916 CI: 1.856-8.262, P <0.001).

In this study, non-traumatic ocular emergencies constituted 57.5% of all the ocular emergencies. Of which keratitis was the commonest while lid injury was the commonest of the traumatic ocular emergency. This was similar to a study done in South western part of Nigeria where non injurious emergencies constituted 47.7%. It is however contrary to some series of report from developing and developed countries where traumatic eye diseases were the leading reasons for consultations. The reasons for this pattern in this study was not actually known but could be as a result of lack of ignorance or poor knowledge on the use of unorthodox eye medication practice which could have averted serious eye problems from minor eye complaints. The enforcement of seat belt use by the government agents might have also reduced ocular injuries from RTA as the passage of child right laws reducing child battering.

Good visual outcome following ocular emergencies will depend on prompt presentation, recognition and assessment as well as initial management. Therefore, aggressive health education is of utmost need in the Ekiti community to prevent delay in presentation after having eye emergency. We want to advocate for improved primary and secondary eye care services at the state level to minimise potentially avoidable vision
VI. CONCLUSION

Ocular emergencies still have a relatively large share of eye conditions in Ekiti with majority of the patients having late presentation. The working age group were the worst hit. Children and adolescents were not left out of this potentially blinding condition. One of every 3 emergencies had monocular blindness in the affected eye at presentation. Late presentation was a common pattern as have been observed in previous diverse studies within the country and abroad. We recommend an integration of primary eye care into primary health care in Ekiti to minimise ocular morbidity in ocular emergencies. Intensified Health education programmes are also needed to reduce risk of infections and inflammations by improved ocular hygiene and wearing of protective eye devices and also to encourage victims to present early in order to avoid blindness.

VII. Conflict of interest

The authors have no conflict of interest.

References


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