

Epidemiology of Eyelid Lacerations Presenting To a Level I Trauma Center in the United States

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Introduction

- Eye injuries are a common cause of emergency department (ED) visits in the United States (US), comprising 36.3% of all ophthalmic conditions ED visits.¹
- Eyelid lacerations were also found to be the second most common cause of eye injuries seen in the ED, comprising almost 10% of all visits.²
- The epidemiology of eyelid laceration injuries has not been well documented.
- The objective of this study was to investigate the etiologies and demographic factors for patients presenting with eyelid lacerations to a U.S. tertiary academic center ED.

Methods

- This was a two-year retrospective chart review of all patients with eyelid lacerations who presented to the ED at a single tertiary academic center.
- An eyelid laceration was defined as any laceration involving the eyelids, eyelid margins, and/or the canaliculus.
- We constructed a fully adjusted multivariable logistic regression model, that included the covariates sex, age, race/ethnicity, insurance status, and concomitant ophthalmic injuries, to investigate the association between those variables and the specific etiology to their eyelid laceration

Table 1. Characteristics of Patients with Eyelid Lacerations According to Mechanism of Injury

| Characteristic | Assault N (%) | Falls N (%) | Sports and Recreational Activity N (%) | Animal Bite/Scratch N (%) | Motor Vehicle Related N (%) | Other | Total | P-value |
|---------------------------|---------------------|-------------------|--|------------------------------------|--------------------------------------|--------------|---------------|---------|
| Number | 75 | 78 | 39 | 35 | 41 | 35 | 303 | |
| Sex | | | | | | | | |
| Male | 51 (68.0) | 43 (55.1) | 32 (82.1) | 24 (68.6) | 29 (70.7) | 28 (80.0) | 207 (68.3) | 0.035 |
| Female | 24 (32.0) | 35 (44.9) | 7 (17.9) | 11 (31.4) | 12 (29.3) | 7 (20.0) | 96 (31.7) | 0.035 |
| Age | | | | | | | | <0.001 |
| Children (0-10 years) | 5 (6.7) | 26 (33.3) | 12 (30.8) | 23 (65.7) | 8 (19.5) | 4 (11.4) | 78 (25.7) | |
| Adolescents (11-20 years) | 6 (8.0) | 9 (11.5) | 6 (15.4) | 4 (11.4) | 8 (19.5) | 7 (20.0) | 40 (13.2) | |
| Adults (21-60 years) | 61 (81.3) | 25 (32.1) | 16 (41.0) | 8 (22.9) | 24 (58.5) | 22 (62.9) | 156 (51.5) | |
| Elders (>=60yr) | 3 (4.0) | 18 (23.1) | 5 (12.8) | 0 (0.0) | 1 (2.4) | 2 (5.7) | 29 (9.6) | |
| Race/ethnicity | | | | | | | | <0.001 |
| White | 17 (22.7) | 35 (44.9) | 26 (66.7) | 23 (65.7) | 12 (29.3) | 15 (42.9) | 128 (42.2) | |
| African American | 54 (72.0) | 30 (38.5) | 9 (23.1) | 6 (17.1) | 23 (56.1) | 12 (34.3) | 134 (44.2) | |
| Asian or Pacific Islander | 0 (0.0) | 1 (1.3) | 2 (5.1) | 3 (8.6) | 1 (2.4) | 0 (0.0) | 7 (2.3) | |
| Hispanic/Latino | 4 (5.3) | 7 (9.0) | 1 (2.6) | 2 (5.7) | 2 (4.9) | 5 (14.3) | 21 (6.9) | |
| Other | 0 (0.0) | 5 (6.4) | 1 (2.6) | 1 (2.9) | 3 (7.3) | 3 (8.6) | 13 (4.3) | |

Table 2. Variables Associated with an Eyelid Laceration Stratified According to Mechanisms of Injury

| Covariate | Assault OR (95% CI) | Falls OR (95% CI) | Motor Vehicle Related OR (95% CI) |
|--|------------------------|----------------------|--------------------------------------|
| Sex | | | |
| Male | | | Reference |
| Female | 1.1 (0.55,2.19) | 2.32 (1.27,4.23) | 0.99 (0.44,2.11) |
| Age | | | |
| Children (0-10 years) | 0.54 (0.1,3.45) | 0.15 (0.04,0.48) | N/A* |
| Adolescents (11-20 years) | 0.83 (0.16,5.18) | 0.12 (0.03,0.43) | N/A* |
| Adults (21-60 years) | 3.49 (0.93,17.92) | 0.08 (0.02,0.24) | N/A* |
| Elders (>=60yr) | | | Reference |
| Race/ethnicity | | | |
| White | | | Reference |
| African American | 3.57 (1.78,7.41) | 0.97 (0.51,1.93) | 1.58 (0.7,3.69) |
| Asian or Pacific Islander | N/A* | 0.29 (0.01,2.11) | N/A* |
| Hispanic/Latino | 1.04 (0.24,3.81) | 1.74 (0.52,5.48) | 0.85 (0.12,3.79) |
| Other | N/A* | 1.2 (0.3,4.4) | N/A* |
| Insurance | | | |
| Medicare | 1.59 (0.32,7.4) | 0.7 (0.17,2.53) | 0.57 (0.03,4.2) |
| Medicaid | 2.66 (1.14,6.57) | 1 (0.48,2.11) | 1.17 (0.48,2.97) |
| Private | | | Reference |
| Uninsured | 2.03 (0.74,5.73) | 1.13 (0.44,2.85) | 1.28 (0.43,3.83) |
| Other | 1.22 (0.26,5.14) | 1.13 (0.28,3.95) | 1.42 (0.28,5.73) |
| Concomitant Ophthalmic Injuries | | | |
| Yes | 2.25 (1.2,4.29) | 0.41 (0.21,0.79) | 0.66 (0.3,1.38) |
| No | | | Reference |

N/A*: No patients were found in the specific comparison group or there were not enough to conduct a stable regression analysis.

Results

- In the 303 eyelid laceration cases identified, falls (25.7%) and assault (24.8%) were the most common etiologies overall, with 81.3% of all assaults occurring in adults aged 21-60 years.
- Patients presenting with concomitant intraocular and/or orbital injuries were more likely to have an assault etiology (OR 2.25 [95% CI 1.20-4.29]; P = 0.012).
- African American patients and those using Medicaid insurance were more likely to have an eyelid laceration injury due to assault when compared to Caucasian patients and those using private insurance (OR 3.57 [95% CI 1.78-7.41]; P = <0.001 and OR 2.66 [95% CI 1.14-6.57]; P = 0.027, respectively).

Conclusion

- Falls and assaults were the leading causes of eyelid lacerations overall in our cohort.
- Identifying the most common etiologies for eyelid lacerations can help raise awareness as to which preventive measures would best serve specific patient populations.

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References

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