Surgical Interventions after Pediatric Dog bite Injury in the United States: Analysis of Kids’ Inpatient Database

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DISCLOSURES

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BACKGROUND

- Approximately 78 million pet dogs are owned in the USA
- 2.5 million children are attacked by dogs every year
- 50% of all children will be bitten by aged under 18 years
- Bites can crush or tear muscle and bone, damage blood vessels and nerve tissue
- Require surgery, wound debridement, antibiotic therapy, tetanus
- Over 160 million dollars annually spent on hospitalizations
- 10-15% of bitten children report nightmares, prolonged phobia, and post traumatic stress disorder
**Goal:** To understand association between pediatric dog bite and traumatic injuries, in order to identify high risk groups for which surgical interventions can improve outcomes
METHODOLOGY

Database: Kids’ Inpatient Database (KIDS) 2012
Inclusion Criteria: children <18 years, ICD-9 mechanisms of injury code for a dog bite [E906.0]

Primary outcomes:
• Surgical intervention
• Mortality

Weighted data are presented in order to calculate national estimates
RESULTS

3,105 pediatric patients admitted after dog bite (46/100,000 admitted patients)

Hospitalized patients were commonly:

• Male (1,751; 56%)
• White (1,825; 59%)
• In summer months (1,040; 33%)
• South (1,085; 35%)
• More often on Medicaid (1,542; 50%)
• Lower zip income quartile (1,728; 55%)
Age-distribution among Patients Hospitalized with Dog bites

- <1 y: 0
- 1-3y: 1000
- 4-6y: 600
- 7-11y: 700
- 12-19y: 500
### RESULTS

1,021 (33%) underwent surgery
- mostly skin or soft tissue debridement (n=725, 71%)
- commonly older (odds ratio[OR] 1.2, 95% confidence interval[CI] 1.1-1.3, P<0.0001)
- performed in an urban teaching hospital (OR=1.4, 95%CI 1.2-1.8, P<0.0001)

- 93% of patients discharged to home

Fewer than 10 hospitalized patients died
- No variables predictive of mortality

#### Table: Anatomic site of injury

<table>
<thead>
<tr>
<th>Anatomic site of injury</th>
<th>All patients (n=3,105)</th>
<th>Patients undergoing surgery (n=1,021)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head/neck</td>
<td>60 (2)</td>
<td>33 (3)*</td>
</tr>
<tr>
<td>Face</td>
<td>53 (20)</td>
<td>45 (4)*</td>
</tr>
<tr>
<td>Extremity</td>
<td>267 (9)</td>
<td>152 (15)*</td>
</tr>
<tr>
<td>Multiple body regions</td>
<td>2,603 (84)</td>
<td>755 (74)*</td>
</tr>
</tbody>
</table>

*P<0.0001
STUDY LIMITATIONS

• Retrospective cohort investigation
• Unable to follow up patients prospectively
• Patient population derived from an administrative database. Data were not originally collected to formulate our study
• Underutilization of mechanisms of injury codes (e-codes) in healthcare billing data.
CONCLUSIONS

• Dog bites are preventable
• Require surgical intervention
• Injuries to the face and upper extremities commonly require surgical intervention
• Death is rare among pediatric patients hospitalized after dog bite
• Psychological intervention should be focused on PTSD and phobia