INTRODUCTION

Golf has a strong foundation internationally and is a popular sport among all ages. An estimated 60 million play across the world.4 Changing technology has allowed for equipment improvement such as golf carts for faster travel,5 clubs that aid in superior swing and ball distance, and even alterations to physical technique. New technology can come at a cost, however; reports of injuries in golf are not uncommon. Commonly reported causes are variable including being struck with equipment or vehicle, golf carts, or technique. Multiple reports of injuries in the literature have traditional focused on orthopedic and neural complications.2 In fact, recent literature has begun to reveal that head trauma complications are a concerning area especially within children and adolescents who enjoy this sport.3

Golf carts are especially dangerous with many papers reporting their tragedies.2,5,6 This information leads the authors to believe that safety considerations must constantly adapt. To the authors’ knowledge golf-related facial trauma has not been investigated database to estimate incidence of facial trauma sustained from golf and further delineate injury patterns, as this information may potentially assist patient evaluation and counseling.

METHODS AND MATERIALS

The NEISS database offered by the U.S. Consumer Product Safety Commission contains information about ED visits for injuries stemming from consumer products. This database was searched for ED visits with the diagnosis of “golf” in the face for the most recent 5-year period available (2010-2014). This resource has been invaluable in numerous prior analyses in the emergency medicine and pediatric literature examining incidence and demographic trends of injuries related to consumer products, as it offers a national injury database that is organized by diagnoses and specific products.

Each relevant case entry was examined for patient demographics and outcomes. Furthermore, the 751 total golf-related facial injury cases found included 1-2 sentence narratives, and each of these narratives were examined in an attempt to elucidate the mechanism or circumstances surrounding the injury. Data collection was completed in October 2015.

ED visits for Golf-Related Facial Trauma

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of ED Visits</th>
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</thead>
<tbody>
<tr>
<td>2010</td>
<td>1000</td>
</tr>
<tr>
<td>2011</td>
<td>800</td>
</tr>
<tr>
<td>2012</td>
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<tr>
<td>2013</td>
<td>900</td>
</tr>
<tr>
<td>2014</td>
<td>1100</td>
</tr>
</tbody>
</table>

**Type of Facial Injury**

- Laceration
- Contusion/Abrasion
- Fracture
- Hematoma

**Mechanism of Injury**

- Cart
- Ball
- Club

RESULTS

From 2010-2014, there were 751 entries extrapolating to an estimated 27,101 ED visits (Figure 1) for golf-related injuries. Median patient age was 9 years, 67.9% were male, and the most common diagnoses were laceration (70.4%), contusion/abrasion (20.0%), and fracture (7.3%) (Figure 2). Most common locations involved in fractures were nose, orbit, and mandible. Most common devices involved in injuries were golf clubs (65.7%), golf balls (14.8%), and carts (9.3%) (Figure 3). Children and teenagers were involved in the majority of injuries (Figure 4). A trend from years 2010 to 2014 showed decreasing amounts of lacerations and abrasion/contusion with stable fracture incidence (Figure 5). A small amount of these injuries were related to miniature golf (2.7%).

**Mechanism of Injury**

- Cart
- Ball
- Club

**Type of Facial Injury**

- Laceration 70.40%, contusion/abrasion 20.00%, fracture 7.30%, hematoma 2.40%

**Incidence of Injury Type**

<table>
<thead>
<tr>
<th>Year</th>
<th>Laceration</th>
<th>Abrasion/Contusion</th>
<th>Fracture</th>
<th>Hematoma</th>
</tr>
</thead>
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</tr>
</tbody>
</table>

CONCLUSIONS

Golf-related injuries are inevitable; however, equipment-related injuries can be prevented with safer teaching and usage. Also, with the majority of injuries were reported in patients who were under 16 years of age, safety regulations may need reconsidered regarding minors who are present at golf courses and the safe equipment usage by these age groups.

REFERENCES


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