ABSTRACT

The need for high resolution computed tomography of the temporal bone (HRTCT) in evaluating intact head trauma is controversial. Some feel this imaging should be a routine part of the evaluation. Others recommend HRTCT only in certain situations. Examples of complicated temporal bone fractures that may benefit from HRTCT include facial nerve injury, sensorineural or prelingual conductive hearing loss, or ossicular chain involvement. Our goal was to determine if HRTCT should be a part of the evaluation of children with temporal bone fractures. Children of age 1 through 18 years with both temporal bone fractures and an otolaryngology consultation were included. Potential predictors evaluated included patient age (less than 3 years of age), mechanism of injury (MOI), laterality of fracture, and the presence or absence of unconsciousness at the time of otolaryngology evaluation to identify potential predictors for complications. Conclusions: Bilateral fractures, pedestrian struck by automobile (PED) mechanism, and a positive history of unconsciousness at the time of otolaryngology consultation were all significantly associated with complications in children with temporal bone fractures. HRTCT imaging should be recommended in these situations.

INTRODUCTION

Methods: A retrospective case series was reviewed from 2007-2011 in a tertiary children’s hospital. A database including all patients admitted for trauma was searched to identify children with temporal bone fractures and an otolaryngology consultation. Potential predictors evaluated included patient age (less than 3 years of age), mechanism of injury (MOI), laterality of fracture, and the presence or absence of unconsciousness at the time of otolaryngology consultation to identify potential predictors for complications. Conclusion: Bilateral fractures, pedestrian struck by automobile (PED) mechanism, and a positive history of unconsciousness at the time of otolaryngology consultation were all significantly associated with complications in children with temporal bone fractures. HRTCT imaging should be recommended in these situations.

RESULTS

A retrospective case series was reviewed from 2007-2011 in a tertiary children’s hospital. A database including all patients admitted for trauma was searched to identify children with temporal bone fractures and an otolaryngology consultation. Potential predictors evaluated included patient age (less than 3 years of age), mechanism of injury (MOI), laterality of fracture, and the presence or absence of unconsciousness at the time of otolaryngology consultation to identify potential predictors for complications. Conclusion: Bilateral fractures, pedestrian struck by automobile (PED) mechanism, and a positive history of unconsciousness at the time of otolaryngology consultation were all significantly associated with complications in children with temporal bone fractures. HRTCT imaging should be recommended in these situations.

MEASUREMENTS

A total of 135 temporal bone fractures in 125 pediatric patients that survived injuries were identified. The average age was 9.0+/-0.4 years. The most common MOI included falls (26%), sports (16%), bicycle (15%), off-road vehicle (13%), motor vehicle (9%), and pedestrian (8%). Critical imaging findings included CCF in 19.2%, otic capsule involvement in 3.1%, and audiologic testing findings (facial nerve weakness) in 6.4%. Carotid canal involvement was identified in 8.3% of patients, 7.6% of whom also had a temporal bone fracture. Facial trauma led to facial nerve injury, CSF leak, sensorineural hearing loss, and otic capsule involvement.

CONCLUSIONS

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DISCUSSION

Routine HRTCT imaging for blunt temporal bone trauma is controversial. Risk factors for injuries in these patients are well characterized. In this study, 135 temporal bone fractures were evaluated. Risks for complications in children with temporal bone fractures were identified. These include head injury, age, and mechanism of injury. These may be used to identify patients most likely to benefit from HRTCT. Limitations of this study included the retrospective design. HRTCT of the temporal bone was not obtained in all patients, so some injuries may have been missed if only a screening head CT was obtained. Although patients were instructed to obtain a follow-up audiogram, many children and parents did not follow through. Some patients with hearing loss may have been missed if follow-up was obtained elsewhere. Future studies may identify these most at risk for complications and those most likely to benefit from temporal bone HRTCT.

CONCLUSIONS

REFERENCE


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