Trends in Facial Fracture Treatment Using the American College of Surgeons National Surgical Quality Improvement Program Database

Kuylhee Kim, M.D.
Ahmed M. S. Ibrahim, M.D.
Pieter G. L. Koolen, M.D.
Bernard T. Lee, M.D., M.B.A.
Samuel J. Lin, M.D.

Boston, Mass.

Background: Facial fractures are commonly encountered scenarios for surgeons in the emergency room. The aim of this study was to assess epidemiology and complication rates of facial fractures and the impact of surgical specialty on facial fracture repair using the American College of Surgeons National Surgical Quality Improvement Program database.
Methods: The authors performed a retrospective review of prospectively collected data from the 2005 to 2011 American College of Surgeons National Surgical Quality Improvement Program databases using Current Procedural Terminology codes to identify patients undergoing facial fracture repair. Demographic data, postoperative complications, comparison between single and multiple facial fractures, and surgical specialty were accessed. Chi-square tests or Fisher's exact test were used for comparing categorical variables and *t* tests for continuous variables.
Results: A total of 1170 patients were analyzed. The mean age was 38.7 ± 17.0, and the male-to-female ratio was 3.72:1. The most prevalent facial fracture was mandibular fracture in the single-fracture group and zygomatic fracture in the multiple-fracture group. Mandibular fractures were more prevalent in males and orbital fractures in females. Wound complication, morbidity, and mortality rates were 1.8, 1.3, and 0.1 percent, respectively. Multiple facial fractures and orbital fractures were more frequently treated by plastic surgeons among all surgeons.
Conclusions: Epidemiologic analysis of facial fractures identifies the most affected patient populations and the characteristics of their fractures. Comparison of complication rates and surgical specialty may permit broad insight into how patients are currently managed. (*Plast. Reconstr. Surg.* 133: 627, 2014.)
CLINICAL QUESTION/LEVEL OF EVIDENCE: Therapeutic, III.

According to the Centers for Disease Control and Prevention, accidental trauma is one of the leading causes of death in United States and accounted for 120,859 deaths in 2011.[1] Facial bone fractures are commonly encountered trauma scenarios for surgeons in the emergency room. Facial fracture requires allocation of resources because of its incidence and because it is often accompanied by other injuries.[2,3] There have been numerous studies reporting on the epidemiology of facial fractures and associated hospitalization outcomes.[4–16] However, because of social, cultural, and environmental factors, both the incidence and cause of facial fractures can vary from one country to another.[16] Furthermore, a majority of studies have been single institution in origin and primarily regional, which limits an analysis of a nationwide epidemiologic assessment of facial fractures. Moreover, because these studies are based on trauma registries, these studies lack follow-up data and thereby are limited in

From the Division of Plastic Surgery, Beth Israel Deaconess Medical Center, Harvard Medical School.
Received for publication June 26, 2013; accepted September 3, 2013.

DOI: 10.1097/01.prs.0000438457.83345.e9

Disclosure: *The authors have no financial interest to declare in relation to the content of this article. There was no internal or external financial support for this study.*