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A Study of 39,478 Firearm Injuries in the Pediatric Population: Trends over Time and Disparities in Flap Reconstruction

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INTRODUCTION: Firearm injuries in children and adolescents have only been investigated in a few national studies describing patient hospitalization characteristics, without analyzing regional trends or treatment modalities.[1,2,3] Plastic surgeons have a unique role in reconstruction of firearm-related defects.[4,5] The aim of our study is to investigate national and regional trends of firearm injuries and flap reconstruction, as well as injuries, outcomes and disparities in patient characteristics.

METHODS: A retrospective analysis of the Healthcare Cost and Utilization Project Kids' Inpatient Database between 2000–2012 for patients ≤20 years admitted with firearm injuries was performed. The Cochran-Armitage test was used to evaluate national and regional trends in firearm and flap reconstruction over time. Patient characteristics, injuries and outcomes were analyzed for non-flap reconstruction (NFR) and flap reconstruction (FR).

RESULTS: From 2000 to 2012, 39,476 pediatric patients were admitted for firearm injuries. There was no significant change in incidence per one million population (2000: 111.40, 2003: 101.34, 2006: 123.80, 2009: 109.32, 2012: 91.85 per million). Flap reconstruction has significantly increased (2.57% to 3.34%, p=0.003). Northeast and West regions both show a significant increase in FR from 1.90% to 3.10% (p=0.034 and p=0.004, respectively). There were more male FR patients compared to NFR patients (92.3% vs. 89.9%, p=0.009). There were significant differences in ethnicity (p<0.001), insurance (p<0.001), and income (p<0.001). Patients undergoing FR were more often Caucasian (28.6% vs. 16.3%) with government (46.2% vs. 44.5%), private (28.4% vs. 25.2%) or 'other' (8.4% vs. 7.5%) insurance status. There were significant differences in hospital size (p<0.001), teaching status (p<0.001) and region (p<0.001). Patients undergoing FR were more often admitted at large (76.9% vs. 71.8%), urban teaching (87.8% vs. 81.9%) centers in the Midwest (22.7% vs. 22.4%) and South (42.1% vs. 34.4%). Patients with FR had significantly more infections (4.7% vs. 1.1%, p<0.001), respiratory complications (10.5% vs. 8.1%, p=0.004), wound dehiscence (0.6% vs. 0.4%, p<0.001) and acute renal failure (2.7% vs. 0.7%, p<0.001). A significantly greater number of NFR patients had concomitant injuries (p<0.001).

CONCLUSIONS: Flap reconstruction for firearm injuries is an important aspect of plastic surgery, with an increase in the number of these procedures done over the years. Differences in patient characteristics for patients receiving flap reconstruction and region-specific variation should be further investigated.

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Patient Satisfaction after Facial Reconstruction Using the FACE-Q Questionnaires

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