sent to University Medical Center in El Paso, Texas between the years of 2005-2015 with acute TBI. The patients’ age, sex, race, residence, admission GCS, GCS-Motor, Injury Severity Score (ISS), ICU and hospital length of stay (LOS), mechanism of injury, and discharge referral were extracted. The data was analyzed in univariate and multivariate analysis using SPSS.

**Results**
The discharge disposition was found to be significantly different between the Hispanic and the non-Hispanic populations. 70.2% of Hispanic patients were sent home without post-hospitalization care whereas only 53.5% of the non-Hispanic patients were sent home. Hispanics were also sent to acute care facilities 6.9% of the time and to rehabilitation centers 18.5% of the time compared to non-Hispanics who were sent to acute care facilities 10.8% of the time and to rehabilitation 27.5% of the time. Further, the ages of presentation, mechanism of injury, LOS, ISS, GCS, and GCS-M were comparable between the ethnic groups.

**Summary/Discussion**
The Hispanic population has been shown to be discharged to post-hospitalization care facilities at a lower rate as compared to non-Hispanic populations. This remains true even where the overwhelming majority of the population is Hispanic such as El Paso, Texas. Further, when risk factors for poor outcomes were stratified by ethnicity, there was no appreciable difference. This suggests that TBI patients of comparable traumatic severity and functional outcome probability but different ethnicities are discharged without further care at different rates.

**Introduction**
Tibial nonunion following open tibial fractures is a difficult problem. Bone grafting vis RIA has recently emerged as a promising alternative technique to obtain large volumes of high-quality autogenous bone graft that may be used to address segmental bone loss and nonunion. This study presents our institutional series of open Gustillo-Anderson type III tibial fractures with bone loss, which were treated with RIA autogenous bone graft for nonunion treated with multiplanar external fixation.

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**Bone Grafting via Reamer-Irrigator-Aspirator for Non-union of Open Gustillo-Anderson Type III Tibial Fractures Treated with Multiplanar External Fixator**

Gautham Pragbhakar, BA, Nicholas Kusnezov, MD, Matthew Dalo, BS, Ahmed Thabet Hagag, MD, Amr Abdelgawad, MD

**Continued on page 23**
Patients and Methods
We performed a retrospective review of consecutive patients with open Gustillo-Anderson type III tibial fractures which were treated primarily with multiplanar external fixator application and underwent RIA autografting for nonunion from June 2008 to December 2015 at our institutional academic Level 1 Trauma Center. All patients between 15 to 65 years with a minimum of six months follow-up were included. Demographic information, injury variables, and surgical characteristics were collected from the electronic medical record. The primary outcomes of interest were achievement of union, time to union, and incidence of revision surgery. Union was determined both clinically and radiographically. CT scan was obtained in the setting of uncertainty of radiographic union on plain film radiographs. Complications and all-cause reoperation were also recorded as a secondary endpoint. Statistical means and standard deviations were calculated for continuous variables and categorical data was expressed as frequencies.

Results
Fifteen patients met the inclusion criteria with an average age of 41.1±14.0 (range 15-64) years and 67% were male. Seven injuries were Gustillo-Anderson IIIA and eight were IIIB injuries. Most injuries involved the distal tibia (n=8), and were metaphyseal (n=8). Segmental defects ranged from 0.6-7.6 cm with an average linear size of 3.8 cm at the time of injury. All patients went on to nonunion at an average of 11.2±9.5 (range 3.1-35.3) months following injury. Four of the fifteen patients had bone transport to address the defect. RIA was harvested from the femur in all cases, and the average volume harvested was 34±15mL. At an average final follow-up of 13.3±6.8 (6.0 – 31.2) months, all patients (100%) went on to union both clinically and radiographically, including two patients who required repeat RIA for persistent nonunion at 4 and 8 months following the index RIA autogenous bone grafting. One patient experienced a femoral shaft fracture 4 months following RIA that required intramedullary fixation. The average time to union was 6.0±6.3 (1.4-25.9) months. Eleven patients (73.3%) went on to union within 6 months and thirteen (86.7%) within one year. Five patients experienced a total of six post operative complications including 3 deep infections at the fracture site requiring a formal debridement, one patient who refractured through the tibial nonunion site 4 months after RIA and required revision internal fixation, and one patient who gradually developed varus deformity and shortening requiring a corrective tibial osteoplasty lengthening and re-application of a circular external fixator.

Conclusion
We found that RIA offered a reliable solution to nonunion of Continued on page 24

Most HIV positive persons had previous visits to a medical facility where they were not tested for HIV.

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open Gustillo-Anderson type III tibial fractures with concomi-
tant multiplanar external fixator application. All fifteen patients in
our series reliably went on to union at an average of 6 months.
Complications were acceptable compared to complexity of the
injuries but infection occurred in one-quarter of cases and re-
quired formal debridement in all cases.

♦ ♦ ♦ ♦

Black Tar Heroin Skin Popping as a Cause of Botulism
Ihtesham Qureshi, MD, Darine Kassar, MD, Paisith Piriyawat,
MD, Alberto Maud, MD, Gustavo Rodriguez, MD, Salvador
Cruz-Flores, MD

Introduction/Background
Botulism is a rare potentially fatal and treatable disorder caused
by a bacterial-produced toxin that affects the presynaptic synap-
tic membrane resulting in a characteristic neuromuscular dys-
function. It is caused by either the ingestion of the toxin or the
bacteria, inhalation, or wound infection. We present our observa-
tions with a descriptive case series of botulism secondary to
black tar heroin skin popping.

Methodology
We report 15 consecutive cases of botulism presenting to Uni-
versity Medical Center of El Paso. Medical records where re-
viewed to obtain demographic information, clinical presenta-
tion, treatment and outcome.

Results
We identified fifteen patients with mean age of 47 years, twelve
men. All had administered black tar heroin through skin pop-
ping and had abscesses in the administration areas. By history
the most common symptoms were dysphagia 60%, weakness
60%, dysarthria 53%, double vision 40%, blurred vision 33%,
and dry mouth 20%. On exam the most common features were:
Limb weakness 73%, ophthalmoplegia 53%, ptosis 46%. Inter-
estingly enough, in those patients with the documentation the
pupils were reactive in 46%. All patients required mechanical
ventilation and all were treated with the trivalent antitoxin. Thir-
teen patients were discharged home and 2 were transferred to a
skill nursing facility.

Summary/Discussion
In our patients, black tar heroin skin popping, the action of in-
jecting under the skin acetylated morphine derivatives (mostly
6-monooacetylmorphine and 3-monooacetylmorphine) was asso-
ciated with the development of botulism. Its presence in the US-
Mexican border is not surprising since it is frequently produced
in Latin America. Its association with the development of botu-
lism should be recognized early to allow a prompt diagnosis and
treatment with the antitoxin. A clinical feature worth noting is
the presence of normal pupillary light reflex in nearly half of
patients thus a normal pupillary response should not be used as
a finding to exclude botulism.

♦ ♦ ♦ ♦

A Retrospective Analysis of Injuries in the Franklin Moun-
tains
Jeffrey Stagg, Stormy Monks, PhD, Taylor Rodrigues

This paper analyzes the incidence and prevalence of injuries sus-
bained by hikers, mountain bikers, and rock climbers who vis-
ited the Franklin Mountains State Park between April 01, 2010
and April 01, 2016. The author’s intent was to find statistically
significant factors that increase or decrease the risk of injury to
visitors to the state park. A retrospective analysis was done on
data collected through an open record request, and statistically
analyzed using IBM SPSS v.22. Of the 64 cases that met our
inclusion criteria, 25% occurred in the month of May. The most
common time of injury was 2-3:00PM. Nearly half of the cases
occurred at temperatures greater than 90°F. Dehydration or heat
related illness was the most frequently reported symptoms in
these cases, presenting in 48% of cases. Among the 27 patients
presenting with traumatic injury, roughly 50% presented with
lower limb orthopedic injuries. A positive correlation was found
between temperature at time of injury and dehydration/heat-
related symptoms. A negative correlation was found between
temperature at time of injury and falling as a cause of injury.
These findings implicate that the major risk factor in the Frank-
lin Mountains state park is heat and sun exposure. In late spring
and early summer months, hikers should either avoid hiking in
the middle of the day, or take extra precautions to avoid injury.