

with 42 femoral and 11 tibial fractures were treated with either reamed intramedullary nailing (Group R,  $n = 28$ ) or with unreamed nailing (Group NR,  $n = 20$ ) within three days of their injuries. The mean value for age was 27.4 years (range, 16 to 63 years). In Group R, 28 femoral and four tibial fractures, reaming was performed up to 12.5 mm, and a 9–11 mm nail was inserted. In Group NR, 14 femur and 7 tibial fractures, a 9–10 mm nail was inserted without reaming. BAL was performed within 24 hours postoperatively with the standard procedure, in which sterile normal solution is instilled in 20 mL aliquots for a total of 100 mL, and immediately aspirated manually with a syringe. The cells contained in the lavage fluid were counted on uncentrifuged specimens by using a hemocytometer. The fluid then was centrifuged (1,500 rpm, 5 minutes), and differential cell counts were performed on a preparation that was stained with Wright-Giemsa stain. The percentage of lavage cells containing red or brown-red fat droplets (lipid-laden cells) was calculated after examination of at least 200 cells on the slides stained with Sudan III, and the findings for two groups were compared.

**Results:** The average age, ISS, and fracture index (FI) were  $28.1 \pm 12.4$  years,  $15.2 \pm 9.3$ , and  $5.4 \pm 2.4$  in Group R; and  $26.3 \pm 11.7$  years,  $14.5 \pm 6.4$ , and  $4.7 \pm 3.2$  in Group NR, respectively. There were no significant differences between two groups. The mean percentage of lipid-laden cells in BAL fluid was  $33.6 \pm 25.8\%$  (range, 2–89%) for Group R and  $36.6 \pm 21.3\%$  (range, 2–70%) in Group NR. This difference also was not significant statistically. In this study, no typical features of fat embolism syndrome were identified in any of the patients.

**Discussion and Conclusion:** Conventional nailing procedures involving reaming of the medullary cavity have become an established method of long bone fractures over the last few decades. In recent years, however, case reports have been published describing acute pulmonary failure during reamed nailing of long bone fractures. An alternative to conventional reamed nailing can be found in the application of nails of smaller diameter inserted without reaming. This unreamed nailing could prevent pulmonary fat embolism compare to reamed nailing. To evaluate pulmonary fat embolism during intramedullary nailing, we compared patients in a reamed intramedullary nailing group with an unreamed nailing group by means of BAL fluid analysis. Based on the results of this study, unreamed nailing may not prevent pulmonary fat embolism compare to reamed nailing of the medullary cavity.

**Keywords:** bronchoalveolar lavage; fat embolism; fractures; intramedullary nailing; prevention; surgery; trauma

#### P-10

##### Trauma Scoring Systems Explained

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It is important to understand the variety, extent and limitations of the extant Trauma Scoring Systems that are referenced in the English Language literature. Trauma scores are tools to evaluate the extent and severity of injury, facilitate inter-institutional comparisons, and facilitate trauma research. In the United States, emergency physicians direct prehospital care systems, direct trauma teams, and stabilize trauma victims for trauma surgeons. Currently, there is no concise description of extant trauma scoring systems in the Emergency Medicine (EM) literature. This poster presentation presents the three types of trauma scoring systems: 1) physiologic; 2) anatomic; and 3) combined. A hypothetical case study illustrates the use of each system.

The systems described include the:

- 1) Glasgow Coma Scale (GCS);
- 2) Pediatric Glasgow Coma Scale, (PGCS);
- 3) Trauma Score (TS);
- 4) Circulation, Respiration, Abdominal / Thoracic Motor and Speech Scale (CRAMS);
- 5) Acute Physiology and Chronic Health Evaluation System (APACHE);
- 6) Abbreviated Injury Scale (ASS);
- 7) Injury Severity Score (IS S);
- 8) Anatomic Profile (AP);
- 9) A Severity Characterization of Trauma (ASCOT);
- 10) Revised Trauma Score, (RTS);
- 11) Pediatric Trauma Score (PTS); and
- 12) Drug-Rock Injury Severity Score (DRISS).

**Keywords:** Emergency Medicine; scoring systems; severity scores; trauma

#### P-11

##### Development of Right Internal Carotid Artery Transection with Fatality in a Head-injured Patient: A Case Report and Literature Review

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**Introduction:** Head and neck traumas are a major challenge to Emergency Physicians in Taiwan, partial due to the large population of motorcycle drivers. But, head injury combined with internal carotid artery transection, basal skull fracture, and intracranial hemorrhage is a rare emergency occurrence, and needs rapid response and aggressive treatment.

**Case Report:** A 43 year-old female was brought to the Emergency Department following a motorcycle accident. Initial evaluation showed stable hemodynamics, but loss of consciousness with a Glasgow Coma Scale score of five. Nasal bleeding and bloody otorrhea were the first presenting features. The computed tomographic (CT) scan of the brain demonstrated a basilar skull fracture and intracranial hemorrhage. Subsequent emergency carotid and vertebral arteriography disclosed dissection with pseudoaneurysm formation over the high cervical and