with a male–female sex ratio of 3.7:1. The most common location of maxillofacial fractures was the mandible 615(77%) and middle third 205(23%). With regards to mandibular fractures, the body (29.6%) was the commonest sites, followed by the angle (24.4%), ramus (19.5%), dentoalveolar (14.6%), symphysis (11.0%), condyle (0.8%) while in the middle third, the nasal bone (36.7%) was the most common, followed by zygomatic bone (27.8), Lefort II (14.4), Lefort I (7.8%), dentoalveolar (10.0%) and Lefort III (3.3%). Majority of the patients were treated by Open reduction and internal fixation (70.6). Concomitant injuries were 10.8% with orthopaedic injuries accounting for the majority (63.9%). Head injury was associated with 16.3 % of cases.

Conclusion: Maxillofacial fractures are on the increase. We advocate the establishment of regionalized trauma centers with basic training available to all surgical residents for initial emergency room management.

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(A74) Reducing the Potential for Tourniquet Associated Reperfusion Injury

J. Van Der Velde,[1] G. Iohom,[2] L. Serfontein[2]

1. Anaesthetics and Intensive Care Medicine, Cork, Ireland
2. Cork, Ireland

Background: Tourniquets have reappeared in the management of massive hemorrhage and as a tool to ameliorate the effects of reperfusion injury from limb entrapment or suspension trauma, while the patient is rescued to a safer environment. Strategies to minimize subsequent reperfusion injury were investigated in this prospective, randomized study.

Methods: In the safety of an operating theater, sixteen fit and healthy patients scheduled for repair of bimalleolar ankle fractures were randomized into two groups. In the standard release group (R, n1 = 6), the tourniquet was fully deflated at the end of surgery. In the staggered release group (SR, n2 = 10), the tourniquet was fully deflated for 30 seconds and subsequently re-inflated to 300mmHg. The procedure was repeated twice at three-minute intervals prior to full removal. Hemodynamic and blood biochemistry measurements were obtained from an indwelling arterial catheter immediately prior to initial tourniquet deflation and thereafter at 1, 4, 7 and 15 minutes.

Results: Serum Ca2 + concentrations were less in group R at 4 (1.027 ± 0.5 vs. 1.084 ± 0.07mmol/l, $p = 0.046$) and 7 minutes (1.045 ± 0.04 vs. 1.110 + /- 0.06mmol/l, $p = 0.013$). Serum lactate concentration was greater in group R compared to group SR at 1 (1.75 ± 0.19 vs. 1.33 ± 0.31mmol/l, $p = 0.005$) and 4 minutes (1.98 ± 0.23 vs. 1.48 ± 0.39mmol/l, $p = 0.007$), respectively. End-tidal CO2 was less in group SR compared to group R at 1 (4.82 ± 0.45 vs. 5.68 ± 0.26kPa, $p = 0.0004$) and 4 minutes (5.01 ± 0.59 vs. 5.68 ± 0.35kPa, $p = 0.01$), respectively. At 15 minutes, less hypotension and bradycardia was noted in group SR.

Conclusions: A staggered tourniquet release was associated with greater hemodynamic stability and reduced the rate of acute systemic metabolic changes associated with limb reperfusion. Re-application of a tourniquet seemed to halt further reperfusion, providing a window period for patient evaluation and management.

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(A77) Should Response Times continue to be used for Performance Measurement and Targets?

J. Turner

Purpose: Response time performance for emergency calls has been used as an indicator of ambulance service quality in England since 1974. It was revised in 1996 with targets set of eight minutes for life-threatening (category A) and 19 minutes for urgent (category B) calls. Internationally, response time has been used as the benchmark for emergency medical services (EMS) performance. The evidence to support use of response times as a quality measure has been examined.

Methods: A rapid review was used to assess the evidence base for the eight minute response time target. Also, a descriptive observational study of the clinical characteristics of category B calls was performed using two months patient report form data from one English ambulance service.

Results: Five papers were identified that have examined the relationship between response time and mortality for 911/999 emergency call populations. Four papers were from the USA, and in all cases no survival benefit was found for response times > 5 minutes even after adjustment for variables including age, sex and illness severity. This finding was replicated in one UK study. The descriptive study examined call characteristics for 26,882 category B calls. Half of the patients received no intervention other than basic vital signs measurement and 75% had assessment only. Twenty-five percent required some clinical intervention with the majority only requiring oxygen. Less than 5% received significant intervention such as drugs, intravenous cannula, or airway management.

Conclusions: With the exception of cardiac arrest there is consistent evidence that response time has no impact on mortality for EMS calls. Alternative indicators of quality of care should be developed that allow less focus on time targets and more effort on innovation and development of services which could better meet the needs of the majority of patients who do not have a life-threatening problem.

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(A78) EMS System Assessment & Gap Analysis

T. Skeen

International Operations, Greenwood Village, United States of America

Purpose: The World Health Organization Model Trauma System Policy suggests that Governments should undertake systematic reviews of the de facto prehospital transport systems for severely ill and injured persons. These systems, be they formal or informal, should be designed to optimize local resources with emphasis on standards of training, equipment, infrastructure and communications so as to assure delivery of prompt, quality, and equitable prehospital care. Scope of Review and Assessment a System Assessment and Gap Analysis (SAGA) tool has been developed to measure 127 key components of a high performance emergency transport system within the realms of Clinical, Organizational and Logistical functionality. The evaluation compares the current status of the specific components with those commonly expected to be seen in a formal international accredited EMS organization.