

for diagnosis, prevention, and treatment are a target of research in many NATO countries.

Methods: This presentation describes recent HFM Panel technical activities related to psychological/mental health and mTBI and summarizes some of the main findings from those activities.

Results: In preparation.

Conclusions: NATO HFM Panel Technical Activities provide an opportunity for other NATO organizations to benefit from the efforts conducted with the support of the Research and Technology Agency of the Research and Technology Organization.

Keywords: armed conflict; blast effects; mild traumatic brain injury
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Psychological Team Organization following a Disaster

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Introduction: Following an abnormally stressful event, such as a disaster, people can experience a wide range of psychological and physiological acute reactions, which can be extended to first responders. Psychological first aid for disaster-induced stress and trauma may be a precious resource to facilitate a resilience response. Given the disaster's dimension, the technicians may have to intervene in different places with different objectives.

Methods: This study results from documented research based on the past experience and on the best practices describes in the literature. A search was completed using terms “disaster”, “prehospital”, and “psychological intervention” using the EBSCO database, MEDLINE and PSYCHARTICLES.

Results: The Centre for Psychological Support and Crises Intervention (CAPIC) of the National Institute of Medical Emergency created a description of six role tasks that can be assumed in a disaster scenario: (1) Psychosocial Coordinator; (2) primary triage; (3) intervention with people in need of medical assistance and intervention with people in no need of medical assistance; (4) support in the area of bodies recognition; (5) intervention with first responders; and (6) support for relatives through the Information Centers. In addition, a triage protocol was produced.

Conclusions: This study suggests that following the proposed role, tasks in a disaster scenario that is, by nature, chaotic, may enhance the psychological intervention, producing a more resilient behavior.

Keywords: disaster; prehospital; psychological intervention; team organization
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Psychosocial Resilience as a Cross-Cultural Concept: Understanding and Measuring Psychosocial Resilience

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Introduction: Resilience refers to the process of coping with stressors, adversity, change, or opportunity in a man-

ner that results in the identification, fortification, and enrichment of protective factors (Richardson, 2002). Resilience has proved to be quantifiable by scales such as the Connor-Davidson Resilience Scale (CD-RISC) (Vaishnavi, Connor, Davidson, 2007). This study examines the psychometric properties of the Portuguese version of the CD-RISC.

Methods: The Portuguese version of the Connor-Davidson Resilience Scale was used. The CD-RISC items were translated with a process of translation and back-translation by persons fluent in both Portuguese and English. The participants were Portuguese adults from the general population, and of both sexes. The Scale consists of 25 items with an alpha value of 0.89 and test-re-test correlation of 0.87 in the studies with American participants.

Results: Preliminary results of the adaptation study will be presented, including factor structure and psychometric properties of the Portuguese version of the CD-RISC.

Conclusions: It is concluded that the construct of resilience and its measurement used on the American population can be helpful and applicable in understanding Portuguese people ability to thrive despite adversity.

Keywords: Connor-Davidson's Resilience Scale; cross-cultural; factor structure; protective factors; resilience; psychometric properties; trauma
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Trauma in Deployment

Comparison of Four Hemostatic Agents versus Standard Gauze Dressing in Control of Extremity Hemorrhage in a Model of Penetrating Combat Trauma

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Introduction: A randomized, prospective, unblinded trial was conducted to investigate hemostatic agents in a model of severe vascular injury in a small, linear tract wound designed to replicate a penetrating combat injury.

Methods: A complex groin injury with transection of the femoral vessels through a 3 cm entrance wound and 45 seconds of uncontrolled hemorrhage was created in 80 swine prior to randomization to five groups. The groups included: (1) standard gauze (SD); (2) Celox (CX); (3) Chitoflex (CF); (4) Combat Gauze (CG); and (5) WoundStat (WS). Each agent was applied with five minutes of manual pressure prior to resuscitation. Hemodynamic parameters were recorded >180 minutes. Primary endpoints included incidence and the amount of rebleeding.

Results: Composite adverse events consisting of mortality, post-treatment hemorrhage, and failure of initial hemostasis were compared between treatment groups using a single degree of freedom chi-squares. Chi-squares were Yates corrected to obtain conservative tests of statistical significance. Four of 16 (25%) CX, 10 of 16 (62.5%) CF, 6 of 16 (37.5%) CG, 11 of 16 (68.8%) WS, and 7 of 16 (43.8%) SD subjects suffered from adverse events. A significant difference was found between the agents CELOX-A and WoundStat with respect to composite adverse events ($p = 0.0335$).

Conclusions: Celox was superior to Woundstat with respect to composite endpoints in control of hemorrhage in limited access combat trauma wounds

Keywords: combat; hemorrhage; hemostatic agent; swine; trauma
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Does the Time to Administer Lidocaine-Propofol Admixtures Affect Induction Times?

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Purpose: Propofol is a commonly used induction agent for rapidly securing the airway for emergency surgery and is routinely combined with lidocaine to reduce pain upon injection. The purpose of this study was to determine if a difference exists between groups of patients administered a lidocaine-propofol admixture prepared immediately before induction (control group) as compared to one prepared 60–180 minutes prior to induction (experimental group).

Methods: This prospective, randomized investigation enrolled 125 patients scheduled to undergo a procedure requiring general anesthesia. They were randomized into either the control or experimental group. All subjects underwent induction of general anesthesia with a 2 mg/kg propofol and 0.2 mg/kg lidocaine admixture. Time to induction was measured from the time of bolus injection to the time subjects dropped a syringe held between their thumb and forefinger during administration of the admixture.

Results: A total of 116 subjects were included in the final results. No significant differences in demographic variables or other measured variables between groups except in time to syringe drop. Time to syringe drop was noted as 29.7 ± 11.9 seconds in the control group and 43.8 ± 22.1 seconds in the experimental group. ($p < 0.001$).

Conclusions: Lidocaine-propofol admixtures should be mixed immediately before use in order to reduce the risk of awareness under anesthesia during rapid sequence induction for emergency surgery.

Keywords: anesthesia; induction time; lidocaine; propofol
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Detection of Intracranial Hypertension: Utilization of a Portable Ultrasound System

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Introduction: Traumatic brain injury (TBI) is one of the first causes of death in overseas operations. Management of TBI requires intracranial pressure (ICP) monitoring, but that is not always available. A protocol for detection of intracranial hypertension was developed using the ultrasound system dedicated to cardiac or abdominal examination in forward surgical units.

Methods: Transcranial echodoppler (TCED) measurements were performed with the SonoSite TITAN® and a 2 MHz probe dedicated to cardiac examination.

The first step consisted of 2D-echographic identification of the turcica sella through the trans-temporal window

at a depth of 60–70 mm. Secondly, color Doppler was used to detect the middle cerebral artery (MCA). Then, a pulsed-wave Doppler acquisition was realized on the MCA.

Results: Mean, systolic, and diastolic values of blood flow velocities (V_m , V_s , V_d , respectively, in cm/s) and the pulsatility index (PI) [$(V_s - V_d) / V_m$] were calculated. Measurements were repeated twice.

Transcranial echodoppler was considered pathological when two out of three measured values were outside the following limits: $V_m < 30$ cm/s, $V_d < 20$ cm/s, $PI > 1.4$.

These easily reproducible measurements could be used to detect on admission patients at risk for secondary neurological deterioration and to guide their neurologic treatment.

Conclusions: This method will be taught to all military physicians able to use SonoSite TITAN® ultrasound devices.

Keywords: intercranial hypertension; traumatic brain injury; ultrasound

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Comparison of Two Granular Hemostatic Agents in a New Lethal Model of Extremity Arterial Hemorrhage in Swine

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Introduction: Exsanguinating extremity wounds remains the primary source of battlefield mortality. Significant research recently has been undertaken in developing new hemostatic dressings that can stop severe compressible bleeding rapidly. The new granular/powders hemostatic Celox™ (CX) and Woundstat™ (WS) were studied in a new severe hemorrhagic model in the groin area of anesthetized pigs.

Methods: Twenty-one animals were utilized, with seven in each group. After 15 seconds of free bleeding, WS, CX, or standard gauze (SD) were placed on the wound. Continual calibrated pressure was applied upon the dressings starting at 200 mmHg, and was decreased slowly by 5 mmHg every 5 minutes. If bleeding occurred, the external pressure was increased by 5 mmHg. The total pressure quantity (KNS) to obtain definitive hemostasis was expressed in KNewton/Seconds. Blood loss (BL), heart rate (HR) and arterial blood pressure (ASP) were recorded continuously.

Results: There were no differences between the SD, CX, and WS group for the average hemodynamic parameters (ASP, FC). Time when bleeding stopped (BT) was 15.5 min for WS, 16.5 min for CX, 29 min ($p < 0.05$) for SD. Blood loss (ml/Kg) was 6 for WS, 5.9 for CX and 13.1 ($p < 0.05$) for SD. Total pressure quantity was 3.1 for WS, 3.5 for CX and 5.1 ($p < 0.05$) for SD.

Conclusions: Woundstat™ and CX obtained better results than SD in decreasing the BL and the compression task to obtain a definitive hemostasis in a lethal hemorrhagic wound.

Keywords: hemostatic dressing; uncontrolled hemorrhage

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