Anjum Anwar Qadri

Lt. Col. Anjum Anwar is the Assistant Professor of Anesthesiology of CMH Lahore Medical College. He is also the Consultant and Head of Anesthesiology Department of Hand and Upper Limb Surgery Center of Lahore, Pakistan. His academic qualifications are MBBS, Dip. In Anesthesia, MCPS and FCPS. He has a few papers and publications published. He has presented two papers in a conference and symposium one in each respectively. Lt. Col. Anjum was awarded UN Force Commanders Commendation Certificate for rendering extra ordinary medical services he provided between 2006 to 2007.

Philippe Sockeel

Colonel Dr Philippe Sockeel was born in 1966 at Soissons, France. He gained his medical degree from the Military Medical Academy of Lyon in 1994. Following graduation, Dr Sockeel had been deployed in several positions throughout the French Military and overseas including Deputy Surgeon of the 12th Artillery Regiment in Oberhoffen, Germany; Deputy Surgeon of the French Bat of FORPRONU in Sarajevo; Deputy Surgeon of the Eléments Français en Afrique de l'Ouest (EFAO) in Western Africa; Deputy Surgeon of the Groupement d’Intervention de la Gendarmerie Nationale (GIGN); Assistant in visceral surgery in Le Val de Grâce Military Hospital, Paris; Deputy Chief in the Department of General and Digestive Surgery at the Military Hospital LEGOUEST, METZ; Visceral Surgeon, Medico-Surgical Group of Tombokro in the Rep. of Côte d’Ivoire; Visceral Surgeon, Military Hospital Bouffard in Djibouti; Visceral Surgeon, Surgical Light Unit of Abidjan in the Rep. of Côte d’Ivoire; Visceral Surgeon, Franco-German Medico-Surgical Group of Kabul in Afghanistan and as the Visceral Surgeon, Medico-Surgical Group of Plana, Kosovo. Currently, he is the Chief of the Department of General and Digestive Surgery, Military Hospital LEGOUEST, METZ.

OP1

EARTHQUAKE INJURIES AND THE USE OF KETAMINE FOR SURGICAL PROCEDURES : THE KASHMIR EXPERIENCE

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The October 8, 2005 earthquake in Northern Pakistan had widespread destructive effects throughout the northern subcontinent. Large numbers of people were killed or severely injured and many medical services destroyed. This report describes the experience of the only standing surgical hospital in the Kashmir region of Bagh District. More than 1,500 people were triaged in 72 hours, many critically injured; 78.4% of patients had upper or lower limb injuries; 50.3% of patients had fractures, mainly closed; 37% of patients required extensive wound debridements. A total of 149 patients received emergency surgery using ketamine anaesthesia with benzodiazepine premedication. This was found to be safe, effective and with a low incidence of major adverse effects. We recommend that ketamine anaesthesia be encouraged in disaster area surgery, particularly in under-resourced regional centres.

OP2

MILITARY SURGERY AND TERRORISM ACTS: EFFECTS OF BLAST INJURIES

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The two major goals of terrorism are the maximizing of casualty generation and maximizing the lethality of those casualties. Explosive blasts become the most common and destructive terrorist weapons around the world because of the small amount of money and training they require. Cause of the new nature of modern military operation, military surgeon need to be prepared for mass casualties by terrorism bombing. We report the experience of the French level 2 surgical unit in Afghanistan from January to April 2007. Primary blast injury: this form of injury results from the deleterious effects of the blast wave passing through the body. These waves have little or no effect on solid organs but have their major destructive potential in air containing organs, especially lungs. Secondary blast injury refers to the impact of inert projectile on a patient’s body. The addiction of destructive metal fragment, nails and other such objects to bombs increase the severity of injury and lethality. Tertiary blast injury refers to the deceleration and impact with the ground, wall or other inanimate object of the patient whose body is displaced by the blast. Quaternary blast injury refers to the miscellaneous forms of injury by-products of explosions; burns, inhalation of dust, contamination in case of “dirty bombs” or penetration of allogetic body parts such as the sharpnel or soldier’s contamination by hepatitis or HIV. Modalities of surveillance and treatment after they return home will also be discussed.
Early TVS protects the extremity from further ischemic insult and reduces circulating markers of tissue injury.

**Conclusion:** This study provides physiologic insight into the benefit of TVS in a model of acute ischemia. The presence of a shunt does not increase the Ischemic Injury Index.

**data demonstrates a decrement in nerve conduction which correlates with Tarlov score.**

**Results:** The proportion of common femoral arterial flow to baseline flow in the Isc6 group was lower than the Iscctrl group (P=0.02). The Ischemia Injury Index was significantly different in the Isc3 and Isc6 groups (late shunt placement) compared to the Iscctrl, Isc0, and Isc1 groups (early shunt placement)(P<0.001). Preliminary electromyographic

**Methods:** A porcine model of hind-limb ischemia via iliac artery occlusion was utilized (N=36). Animals were randomized into one control (Isc ctrl) and 4 study groups (Isc0, Isc1, Isc3, and Isc6) according to ischemic time. Flow and circulating injury markers were collected over 18 hours of reperfusion which were used to characterize group differences. Surrogates of functional outcome in a porcine model of acute limb ischemia.

**Background:** Damage control surgical adjuncts, such as the temporary vascular shunt(TVS), are utilized near the battlefield to extend the window of opportunity to repair vascular injuries. He is a decorated, twenty three years veteran of the United States Air Force.

**Results:** The proportion of common femoral arterial flow to baseline flow in the Isc6 group was lower than the Iscctrl group (P=0.02). The Ischemia Injury Index was significantly different in the Isc3 and Isc6 groups (late shunt placement) compared to the Iscctrl, Isc0, and Isc1 groups (early shunt placement)(P=0.001). Preliminary electromyographic data demonstrates a decrement in nerve conduction which correlates with Tarlov score.

**Conclusion:** This study provides physiologic insight into the benefit of TVS in a model of acute ischemia. The presence of a shunt does not increase the Ischemic Injury Index. Early TVS protects the extremity from further ischemic insult and reduces circulating markers of tissue injury.
OP5
SEVERE LIVER TRAUMA - CAN MILITARY MEDICINE PROVIDE THE CURRENT STANDARD OF CARE

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The effective treatment of blunt and penetrating abdominal trauma is one of the most important issues in acute military medicine. Especially the treatment of severe liver trauma has changed in recent years. The introduction of routine abdominal CT scan and the options of endovascular procedures caused a shift from routine surgical versus non-surgical treatment in the management of traumatic liver injuries. The availability of less invasive procedures has expanded dramatically the treatment options. The knowledge and the indications of different treatment options is a crucial point in planning military medicine structures in the home countries as well as abroad.

OP6
HI-TECH DEBRIDEMENT IN SOFT INJURIES OF THE LIMB

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For various reasons, complex limb injuries pose a therapeutic challenge to the surgeon. As a matter of fact, the diagnostic options, clinical evolution, local treatment, systemic therapy, and the reconstructive surgical approach depend on extrinsic factors: 1) the type of energy causing the trauma; 2) the application vector; 3) the application time; 4) the surrounding environment; and intrinsic factors: 1) the age of the patient; 2) the anatomical location (limb diameter); 3) the wound depth; 4) the presence of microorganisms. The structures that make up the architecture of the limbs are elastic (vessels, nerves, muscles), non-elastic (tendons, muscle fascias, etc.) and hard (bones). The degree of the structures’ involvement affects the initial assessment, the local conservative/surgical treatment as well as the outcome. Complex soft injuries of the limbs very often result from traumas due to mechanical energy, either direct (explosive munitions and small arms) or indirect (sonic shock waves). If no direct amputation occurs, there remain displaced and/or open fractures and comminuted fractures. Owing to its intrinsic characteristics, thermal energy determines a well-defined depth gradation (Jackson’s target) that can sometimes be foreseen by relating it to the vector (direct flame, scald, etc). High-voltage electrical energy is an exception: it usually produces very severe injuries (carbonization) of the skeletal segment involved and subsequent amputation. Advanced debridement techniques for the treatment of complex soft injuries have been used in our Wound Care Unit of the Rome Army Military Hospital since 2005. Detersion is usually performed under topical or local anesthesia in an outpatient setting, using one of the following techniques: 1) Ultrasound Scalpel; 2) Hydrosurgery; 3) Negative Pressure Wound Therapy (N.P.W.T.). The use of ultrasound scalpel is reserved for the treatment of recent and more superficial injuries (fibrillar dermis). This technique is useful for both initial detersion and maintenance debridement. The only disadvantage is that the vaporization of non-viable tissues produces a small amount of airborne suspension of the debris being removed (aerosol). This technique is not very painful and is easily accepted as an outpatient treatment. Hydrosurgery is used in the presence of deep tissue necrosis and non-recent injuries. Locoregional anesthesia is sometimes required, since this technique is more painful than the ultrasound scalpel technique. When performed by experienced professionals, this procedure allows complete removal of non-viable tissue, is easy to perform, and is virtually bloodless. N.P.W.T is used for extended indications in the treatment of deep injuries associated with a significant destruction of soft tissues, fistulous passages and wide tissue detachment. Although negative pressure mainly remains a high-tech local wound care technique, in these cases it is used to eliminate dead spaces, increase district perfusion and reduce bacterial load. Absolute contraindications include active bleeding and exposed vessels. In recent years, the use of modern debridement techniques in combination with specific wound bed disinfection and irrigation procedures has been shown to shorten healing time and reduce the incidence of microorganism colonization.
**OP7**

**THE CONTRIBUTION OF DERMATOLOGY AND DERMATOLOGY SURGERY IN A COMBAT ENVIRONMENT**

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Background: Since July 2004, the US Army has operated a forward deployed dermatology clinic in Baghdad, Iraq. This paper is to outline the prevalence of skin disease among deployed service men and women in Operation Iraqi Freedom. Despite the large contribution by dermatology to military readiness, there have been few published reports regarding dermatologic care in the combat environment.

Objective: The purpose of this paper is to outline the contribution of dermatology and dermatologic surgery, among deployed service men and women in Operation Iraqi Freedom.

Methods: A retrospective chart review was performed of all dermatology visits at the 86th Combat Support Hospital, Ibn Sina, Iraq, between January 15th 2008 and July 15th 2008.

Results: 2696 total patients were seen in the combat dermatology clinic during the 6 month period reviewed. The most prevalent diagnoses included eczematous dermatitis (15%) and benign neoplasms (14%). Bacterial infections comprised 6% of the total visits and 31 of these cases were community acquired Methicillin Resistant Staphylococcus Aureus (MRSA). There was a single case of cutaneous Leishmaniasis diagnosed during the time period reviewed. 8% (205/2036) of the total visits were for skin cancer and another 129 patients were treated for actinic keratosis. The specific diagnoses were: Basal Cell Carcinoma (70), Squamous cell carcinoma both in-situ and invasive (68), mycosis fungoides (1), Bowenoid papulosis (1), and melanoma both in-situ and invasive (9). A total of 307 surgeries were performed in the 6 month period (178 skin cancers and 129 benign lesions) and 20 patients were referred for Mohs microscopic surgery.

Conclusion: While there have been small case series on skin conditions in wartime, to the authors’ knowledge this is the largest report of the prevalence of skin disease in an exclusively dermatology clinic in the combat setting. The range and severity of diagnoses are less than reported in previous conflicts. For the first time the presence of skin cancer is noted in a combat setting. Specific diagnosis and lessons learned are discussed.

**OP8**

**NON REAMED INTERLOCKING NAILING OF OPEN TIBIAL FRACTURES FOR PARATROOPERS**

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Aims: Treatment of open tibial fractures associated with soft tissue injuries remains a difficult dilemma, even to the experienced fracture surgeon. With the development of unreamed tibial nail, there has been a trend toward skeletal stabilization with nails rather than external fixators.

Patients and Methods: A review of tibial shaft fractures treated by unreamed tibial nail (UTN Synthes and TARGON Aesculap) between 1997 to 2008 was done. During a follow up of 3 years, 102 cases were reviewed. Fractures were classified according AO30 fracture configuration of long bones, there were 30 types A (simple), 57 type B(multifragmentary) and 15 type C(complex). In Cauchoux Duparc Classification of open tibia fractures, 71 were grade I and 31 grade II. Post operative treatment was possible without additional cast or brace.

Results: Fracture healing occurred over a mean period of 22 weeks (range 12-41 weeks). Knee as well as ankle range of motion was satisfactory. Significant complication included 5 malunion and 6 infections (10.7%).

Conclusion: We recommend that whenever possible, closed interlocking nail should be used to treat closed or mild open segmental tibial shaft fractures for paratroopers.
OP1
PREVALENCE OF SKIN DISEASES AMONG SOLDIERS IN MILITARY OPERATIONS IN IRAQ AND ALGHANISTAN

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Introduction: Skin diseases pose one of the most significant health problems among military personnel stationed in the Middle East and Central Asia. The aim of this study was to examine the incidence of dermatoses in the population of soldiers serving in military operations in Iraq and Afghanistan.

Material and Methods: epidemiological assessment was carried out among patients of Polish nationality treated in the outpatient clinic of the Field Hospital in Iraq (Multinational Division Central South) from August 2003 to June 2004 (N=1692), and in the outpatient clinic of Polish Military Contingent in Afghanistan from November 2003 to October 2005 (N=400). Analysis was based on the medical documentation, hospital records, and cards of ambulant treatment. The examination allowed the incidence and structure of dermatoses among soldiers of Polish Military Contingents in the analyzed period.

Results: Skin diseases pose an epidemiological problem in both military operations. Among the Polish soldiers serving in Iraq, dermatoses made up 22.8% of all health problems, while in Afghanistan – 21.9%. The research showed, that the most frequent dermatoses treated among military personnel of Polish nationality were allergic skin diseases: 25.6% of all dermatological cases in Iraq, and 33.2% in Afghanistan.

Conclusions: High incidence of skin problems among soldiers serving in the hot climate, in warfare zone dictates a necessity of appropriate health qualification of candidates for duty in subtropical and tropical regions, and tight organization of dermatological health assistance in the mission area.

OP2
HEARING LOSS AMONG MALAYSIAN MILITARY PILOTS

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Introduction: Military pilots are exposed to high level aircraft noise which is considered to be one of the factors of acquiring noise-induced hearing loss.

Objective: To determine the prevalence and risk factors of hearing loss among military pilots in Malaysia. Methodology: This was a descriptive cross sectional study. The sources of population were from Malaysian military pilots. The data was collected as a sample of convenience during the pilot’s annual medical check-up at Institute of Aviation Medicine, Kuala Lumpur from January to June 2008. All consented pilots underwent interviewing by using questionnaires, ears examination and hearing assessment with pure tone audiometry (PTA) and distortion product otoacoustic emission (DPOAE).

Results: A total number of 127 military pilots were included in this study. The prevalence of hearing loss (worse than 25dB at any frequency) was 23.6%. All the pilots with hearing impairment had mild hearing loss only. The frequencies most affected were 4 kHz and 6 kHz, typical of noise induced hearing loss. Helicopter pilots had the worse audiogram compared to transport and fighter pilots.

Conclusion: Military pilots are exposed to the risk of acquiring noise induced hearing loss. Helicopter pilots are affected more.
Dr Hamed Aghdam was born in Tabriz, Iran in 1979. He graduated with a medical degree from Tehran University of Medical Sciences. He is presently a Research Associate at the Research Centre Headquarters of Police Force Medicine and his research interests include Evidence Based Practice and Chronic Disease Epidemiology. He has completed a few projects and has published several papers in local and international publications.

Objective: This paper analysed the wearing of seatbelts amongst British Forces personnel in Iraq and explored the various factors that prevented their use.

Method: Questionnaires were administered to 237 British Forces personnel in Southern Iraq from December 2003 to January 2004. Data analysis was by percentages.

Results: 78% of respondents knew the seatbelt regulations, which was to wear it always. They perceived the biggest threat to driving to be bad roads, speeding, security dangers and Iraqi drivers. Seatbelt usage by drivers was 52% always, 26% sometimes and 22% never. This was similar to usage by front seat passengers, which were 52%, 27% and 21% respectively. The main reasons for not wearing seatbelts by drivers and front seat passengers were inhibition of exit and weapons. 66% of back seat passengers in the Land Rover never wore seatbelts.

Conclusions: The wearing of seatbelts is mandatory. The Ministry of Defence seatbelt policy is clear and understood by most service personnel. This study however shows a disparity between awareness of the mandatory use of seatbelt and its actual use. Soldiers however perceive the use of seatbelts as restrictive in a hostile environment. More effective education is needed. It should emphasise the importance of seatbelt usage even in hostile areas like Iraq.

Introduction: Excessive daytime sleepiness has long been known to be associated with an increased risk of serious traffic accidents. Obstructive sleep apnea (OSA) is among the most prevalent conditions leading to excessive daytime sleeping in addition to impaired cognitive function, both of which are likely to impair driving ability.

Methods: To investigate the association between obstructive sleep apnea syndrome and road accidents, and to evaluate potential underlying factors, we prospectively recruited 613 truck drivers and 613 automobile drivers as control subjects, matched for demographic characteristics. We quantified multivariable apnea risk (MAP) index for prediction of sleep apnea.

Results: The mean age of the participants was 44 years, all were men. The study found that out of 631 truck drivers, 493 had some form of mild to moderate sleep apnea and 120 experienced severe sleep apnea. Of 136 vehicle accidents, sleep related vehicle accident occurs more in the higher risk group of truck drivers (109 accidents.) Crash risk was greater among drivers who drove distances between 2000 – 2999 km in a week. The risk was also greater among drivers who had slept fewer than 10 hours or fewer in previous 48 hours, compared with those who had slept 12 hours or more.

Conclusion: Sleep-related vehicle accidents are largely dependent on the time of day and account for a considerable proportion of vehicle accidents. Truck drivers had a 1.9 fold greater risk of obstructive sleep apnea than normal subjects and, further more, the road accident rate of sleep apnea patients was greater than the rate of other licensed drivers in Iran.
OP5  RISK FACTORS FOR PREMATURE DISCHARGE OF INDIVIDUALS FROM SWEDISH MILITARY SERVICE

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With the sharp decrease in number of enlisted conscripts in the Swedish Armed Forces it is more important than ever to prevent conscripts from leaving the service prematurely. Failure to complete military training is a significant problem for armed forces around the world. The present study investigated the prevalence of musculoskeletal complaints or injuries and potential individual risk factors leading to premature discharge from the Swedish military service. Male conscripts, n=1331 answered a questionnaire and performed physical tests at the start of their military service. The range of motion in lower-limbs was measured. A high prevalence of musculoskeletal complaints or injuries in any part of the body was shown (36%). The prevalence of complaints or injuries in lower back was 13% and, knee 13%. A logistic regression analysis (Odds Ratio, OR) revealed that premature discharge was independently and significantly associated with current complaints or injuries in any part of the body (OR 2.6). Being physically inactive (OR 2.0) perceived poor mental health (OR 3.3) and poor physical health (OR 2.0) were other factors independently and significantly associated with premature discharge. The findings highlight the need for early preventive strategies.

OP6  OBESITY AND CARDIOVASCULAR RISK FACTORS AMONG ARMED FORCES PERSONNEL IN MALAYSIAN ARMY

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Body mass index is currently part of the health indicator in Malaysian Armed Forces Health Services. This study was undertaken to investigate the prevalence of overweight and obesity among male soldiers in Malaka and its association with cardiovascular risk factors. A few studies in Malaysia indicated that the prevalence of overweight and obesity seemed to be increasing in the general population recently. A cross sectional study was performed on 392 Malaysian Army personnel aged more than 20 years old between January and Jun 2008. Anthropometric measurements, blood pressure and a brief medical history were obtained in a pre-set questionnaire. Serum lipid profile and fasting plasma sugar were requested for all the subjects. Data was analyzed using SPSS version 16.0. The results showed that the prevalence of overweight and obesity in Malaysian male soldiers were 30.1% and 15.6% respectively. The mean value of age, weight, body mass index, waist circumference, blood pressure in overweight and obese personnel was significantly higher than those of non-overweight personnel. No significant different in means of cardiovascular risk factors among combat and non-combat personnel except for systolic blood pressure (114.27±16.36,117.67±14.29; p=0.029). In conclusion, the prevalence of overweight and obesity among male soldiers in Malacca were high and positively correlated with other cardiovascular risk factors. This study will give a benefit for the Malaysian Armed Forces Health Service directorate to plan a comprehensive preventive program for the soldiers in the future. There is a need to achieve an ideal body weight together with a reduction in the co-existent risk factors for cardiovascular diseases.
OP7
EXERTIONAL HEAT STROKE AMONG TROOPS IN THAILAND: A CASE SERIES TO QUEST FOR COUNTER MEASURE

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Background: Exertional heat stroke (EHS) has been uncommon for military troops in Thailand for the last 5 years. According to the Heat Stroke-Surveillance statistics in our institute, average of a few casualties and unusual deaths took place per year were attributed to excessive heat exposure. The prevalence became higher in the first half of this year necessitating the investigation of illness.

Objective: To evaluate predisposing factors contributed to higher periodical prevalence of EHS in annual military training and also predicting factors affecting the outcome.

Design: Prospective : consecutive case series. Setting: Executed by Heat Stroke-Surveillance Task Force, Phramongkutklao Hospital, Medical Department, Royal Thai Army

Patients: 7 of Thai privates who developed EHS during the basic military training at the beginning of this year in Thailand.

Measurements: Review of all official reports and medical record were accomplished, interrogation of involved medics and military trainers were done in detail at training sites accompanied with record of environmental data by the investigators. All treatments and medical interventions were analyzed individually.

Results: Accumulative heat and high humidity seemed to be the most important factor of higher prevalence, followed by individual risk factor. Three of deaths were attributed to delayed detection at training site and inappropriate treatments of the first echelon were found to be strong predictors of mortality. The therapeutic modalities during the course in survivals were also described.

Conclusions: This preliminary analysis warrants some measures aimed to prevent this preventable illness, which will be able to implement into the training regulation for better health service. The evaluation of the adaptive “Military Training Protocol” efficacy needs further surveillance and investigation.

OP8
SCORPION STINGS : AN EXPERIENCE FROM THE ALGERIAN MILITARY HEALTH SERVICES

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Scorpion stings represents major health problem in Algeria. Thousands of cases of stings with fatalities occur every year. A national anti-scorpion program was launched in 1980’s to increase awareness the problem. The military population is also affected where up to 300 cases are recorded every year. Consequently, the military health services has taken look appropriate measures to protect soldiers from scorpion stings and to treat those whom are victims. This experience will be presented...
CONCURRENT SESSION 3C : INFECTIOUS DISEASES OF MILITARY IMPORTANCE I

**OP1**

UTILITY OF QUANTIFERON-TB GOLD IN-TUBE FOR TUBERCULOSIS SCREENING IN ITALIAN AIR FORCE PERSONNEL

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Background: Military personnel are at high risk of acquiring tuberculosis (TB) infection because of activities in close quarters and working in regions with high prevalence of TB. In Italian Armed Forces the screening for TB infection by tuberculosis skin test (TST) is mandated upon entering the service, and during deployment abroad. Since the TST is prone to boosting and false-positive TST responses may occur after contact with environmental mycobacteria that share common antigens with M. tuberculosis or after bacilli Calmette-Guérin (BCG) vaccination, the surveillance of military personnel could be facilitated by a simple blood test like the IGRA.

Aims: The purpose of the study was to evaluate the feasibility and utility of the QuantiFERON-TB Gold in-tube (QFT-GIT), as a potential tool for screening a group of 130 military subjects of Italian Air Force, engaged in missions in Afghanistan or Balkan area, and to compare QFT-GIT with TST. Before and 20 days after their re-entry in Italy, all personnel underwent both QFT-GIT and TST.

Results: Just before starting the mission abroad, the overall prevalence of TST positive individuals was 18%, whereas QFT-GIT resulted positive in 13.5%. All positive to QFT-IT were positive to TST as well. Among cases positive to the only TST, 82% of them resulted previously vaccinated with BCG. The surveillance of these subjects during the deployment abroad showed that 7 of 107 negative soldiers had TST conversion at the end of the mission. Six out of these 7 TST converted individuals resulted positive also to QTF-IT. No active TB cases were identified among the positive TST and/or QTF-GIT soldiers, both before and after deployment abroad. The diagnostic accuracy of QFT-GIT test versus TST, evaluated by 2-way contingency table analysis, showed an overall diagnostic accuracy of 98.3%, with sensitivity of 92.1%, specificity of 100%, positive predictive value of 100%, and negative predictive value of 97.9%. This study has shown that QFT-GIT assay has some advantages over TST, such as a higher specificity, the result is not prone to boosting, a better correlation with previous exposure to M. tuberculosis, and low cross-reaction due to BCG vaccination or previous exposure to environmental mycobacteria. In conclusion the QFT-GIT shows the potential to replace the TST for TB screening in military subjects engaged in missions in tuberculosis-endemic areas.

**OP2**

GENETIC DIVERSITY OF ORIENTIA TSUTSUGAMUSHI CAUSING HUMAN SCRUB TYPHUS IN UPPER REGIONS OF THAILAND

Toon Ruangareerate

1st Lt DR Toon Ruangareerate PhD, is a Research Scientist in the Department of Epidemiology, Research Division, Armed Forces Research Institute of Medical Science (AFRIMS) in Bangkok, Thailand. He obtained his BSc in Biology from Mahidol University in 1998. Upon graduation, DR Ruangareerate attended an Anti-Malaria Program with the Ministry of Commerce, The Peoples Republic of China a Training and Research program at the Centers for Disease Control and Prevention (CDC) in the United States of America. In 1999 he was awarded the Royal Golden Jubilee Ph.D. Scholarship by the Thailand Research Fund (TRF) and completed his Doctorate in the field of Biology from the Mahidol University in 2004. In 2007, he was awarded a Distinguished Thesis Award by Mahidol University and was appointed a Thesis Committee Member in the Faculty of Graduate Studies in the same university. He has attended and presented in numerous conferences in Thailand and internationally.

Scrub typhus, caused by Gram negative obligate intracellular bacterium, Orientia tsutsugamushi, is a widely endemic disease in Asian Pacific regions, including Thailand. The disease is clinically difficult to diagnose and can be lethal if left without appropriate treatment. To develop a sensitive and specific diagnostic tool as well as an effective vaccine for O. tsutsugamushi strains circulating in Thailand, it is necessary to understand their genetic diversity and phylogenetic relationship. Utilizing PCR, we screened blood samples from 607 febrile patients from the upper regions of Thailand from 2004-2007. Fragment of O. tsutsugamushi specific gene encoding major protein antigen, 56 kDa was detected in 51 cases (8.4%). Amplified fragments spanning over 3 major variable regions of 56 kDa gene have been sequenced and analyzed. Resulting 56 kDa phylogenetic tree demonstrated that detected O. tsutsugamushi clustered into 7 clusters. Three clustered with previous reported groups, Gilliam, Kato, and LA1, whereas four could probably form new diverse groups. No Karp-like strain was found. The group of O. tsutsugamushi will make a choice of reputative strains of each assemblage that would be used as a model of Thai strains for focusing on development of specific and sensitive diagnosed tool and following by vaccine development next.
OP3
SELECTIVE IMMUNE PLASMA ADSORPTION IN THE COMPLEX TREATMENT OF GRAM-NEGATIVE SEPSIS

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Introduction: Clinical sepsis syndrome has a high fatality rate. Attempts by the European Association of Intensive Care Medicine to establish classification of sepsis survival (SSC) is still a subject of ongoing research. Lipopolysaccharide (LPS) is among the most powerful mediators in gram-negative sepsis, and are involved in different reactions, thus assisting the development of systemic inflammatory response (SIRS syndrome). If this mediator is eliminated, this could improve patients’ condition and significantly increase their survival rate. The extra-corporeal techniques for selective immune plasma adsorption is one of the most modern achievements in elimination of LPS from patient’s blood.

Material and Methods: We have applied selective immune plasma adsorption treatment in 14 patients, who have been found to have gram-negative sepsis of different nosologic genesis. We have utilized two types of filters for selective plasma adsorption - H.E.L.P. Heparin Adsorber® B.Braun and Alteco®LPS Adsorber, and Diapact CRRT apparatus for blood exteriorization. We have performed 1 to 3 (in average two) procedures of two-hour duration at interval of 48 hours.

Results: Nine of the patients have overcome the septic condition – all organs and systems functions recovered and they have been released from the hospital, clinically healthy. Five of the patients died, despite significant temporary improvement in their clinical conditions, and some key lab parameters.

Conclusion: The timely application of immune plasma adsorption opens new possibilities in the complex treatment of sepsis.

Janusz Kocik

Col. Janusz Kocik MD, PhD is currently the Director, Military Institute of Hygiene and Epidemiology, POLAND.

OP4
VACCINES AGAINST ANTHRAX : CURRENT AND FUTURE STRATEGIES

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Bacillus anthracis is a gram-positive spore-forming bacteria, the etiological factor of anthrax. Infection results from contamination of the skin abrasion with spores, ingestion of food contaminated with spores or from inhalation of spores. Inhalation anthrax accounts for most serious morbidity and mortality. According to CDC B.anthracis is recognized as a possible biological threat agent category A. Anthrax spores may be dispersed over large population by missiles, bombs, aircraft or released after bioterrorism unconventional attack. The most effective way of protection of human against anthrax is vaccination. PA–based vaccine, currently licensed in the US is administrated subcutaneously initially as a three biweekly injections followed by free injection at 6, 12 and 16 month and yearly booster thereafter. The vaccine licensed in the K is administrated in four doses, at intervals 3 weeks and the fourth 6 month thereafter. PA–based vaccines induce antitoxin neutralization antibodies, but do not influence on growth of B.anthracis, immunity is not sustainable, there are relatively high rates of local adverse reaction. Existing and potential strategies towards effective vaccines against anthrax (rPA, PA-based DNA, DNI (endosomal trapping), SCAP (spore coat-associated protein), PGAAV, DAAV (dually active anthrax vaccine), and the most effective ways of vaccine administration will be discussed.
ABSTRACT
CONCURRENT SESSION 3C : INFECTIOUS DISEASES OF MILITARY IMPORTANCE I

OP5
NOSOCOMIAL COLONIZATION/INFECTION CAUSED BY ACINETOBACTER SPP. IN PATIENTS FROM SIX SURGICAL CLINICS DURING WARTIME AND PEACETIME

Vesna Suljagic

Backgrounds: Objective of this study were to analyse and compare surveillance Acinetobacter colonization/infection data collected during the wartime with the same data collected during peacetime.

Methods: We conducted a prospective study of incidence of Acinetobacter spp. colonization/infection. Also, 2 nested case-control studies were conducted. Patients with nosocomial infection (cases) were compared with those with nosocomial colonization (controls) during 2 different periods, wartime and peacetime. Patients with NCI by Acinetobacter spp. were identified by case-based surveillance during two different periods: wartime, June-September, 1999 and peace-time, June-September, 2000-2004.

Results: During the study periods pooled rates of Acinetobacter spp. colonization/infection were significantly higher in wartime. During war years, the patients were more significantly males (p=0.001). In the period of peace, most of the colonization/infections were reported from patients with some chronic diseases (p=0.020) and survival was more significant (p=0.049). During the peacetime, proportions of Acinetobacter isolates resistant to ciprofloxacin, imipenem and meropenem were significantly higher (p<0.001).

Conclusion: Our results suggest that pooled rates of Acinetobacter spp. colonization and infection, especially NCI as SSI, UTIs and NI of burns, were significantly higher during the wartime.

OP6
LABORATORY AND FIELD TESTING OF BED-NET TRAPS FOR MOSQUITO (DIPTERA: CULICIDAE) COLLECTION IN WEST JAVA, INDONESIA

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Surveillance of medically important arthropods is critical to determine the risk of arthropod-borne disease transmission. It is necessary to focus on the species of arthropods that bite man to make evidence-based decisions on whether or not to commit limited resources to vector control operations. The purpose of this research was to test self-supporting, exposure-free bed-net traps to survey arthropod disease vectors. The goal was to field a trap that is light-weight, easy to assemble and provides protection to the person in the bed-net while trapping vectors that can be identified and tested for human pathogens. In the laboratory we tested human-baited and unbaited CDC light trap (COT bed-net (CDCBN) combination against 3 types of traps: the Mbita Trap (MBITA), a Tent Trap (TENT) and a modified Tones style Malaise trap (TSN). In the laboratory, 16 runs comparing MBITA, TSM and TENT to the CDCBN were conducted for a total of 48 runs of the experiment using 13,600 mosquitoes. Trap performance can be summarized as follows: TENT-baited>TENT-unbaited>TSM-baited>TSM unbaited>MBITA-baited>MBITA-unbaited. Field tests were conducted comparing human-baited and unbaited CDCBN, TENT and TSM traps during six nights over two consecutive weeks per month from January 2007 to September 2007 in Cibuntu, Sukabumi, West Java for a total of 54 trapnights. A total of 6,474 mosquitoes representing 33 species were collected using the six trapping methods. Trap performance can be summarized as follows: TENT-baited>TENT-unbaited>CDCBN-baited>CDCBN-unbaited>TSM-baited>TSM unbaited. The TEN trap was found to be an effective, light-weight substitute for the CDC light-trap, bed-net combination in the field and should be considered for use in surveys of mosquito-borne diseases such as malaria, arboviruses and filariasis.