Sat. Mar 2, 2019

第11会場

English Session

[EngO3] English Session3

Chair:Atsushi Kawaguchi(University of Montreal, Canada)
8:45 AM - 9:45 AM 第11会場 (国立京都国際会館1F Room C-2)

[EngO3-1] Clinical analysis of prolonged mechanical ventilation＞72hrs following acute type A aortic dissection repair

Genta Chikazawa, Kentaro Tamura, Arudo Hiraoka, Toshinori Totsugawa, Atsuhisa Ishida, Satoko Ishii, Taichi Sakaguchi, Hidenori Yoshitaka （Department of Cardiovascular Surgery and Surgical ICU, The Sakakibara Heart Institute of Okayama, Japan）

[EngO3-2] Measurement of esophageal pressure to assess extubation readiness in a neonate with congenital diaphragmatic hernia: its feasibility and usefulness

Masashi Taniguchi, Yu Inata, Takeshi Hatachi, Yoshiyuki Shimizu, Kazuya Tachibana, Muneyuki Takeuchi （Department of Intensive Care Medicine, Osaka Women’s and Children’s Medical Center, Japan）

[EngO3-3] Current practice of high-flow nasal cannula-the pilot study

Je Hyeong Kim[1], Byun Ki Kim[2], Su A Kim[1], You Sang Ko[3], Won Gun Kwack[4], So Young Park[5]
（1.Department of Critical Care Medicine, Korea University Ansan Hospital, Korea, 2.Division of Pulmonology, Department of Internal Medicine, Korea University Ansan Hospital, Korea, 3.Division of Pulmonary, Allergy and Critical Care Medicine, Department of Internal Medicine, Kangdong Sacred Heart Hospital, Korea, 4.Division of Pulmonary, Allergy and Critical Care Medicine, Department of Internal Medicine, Kyung Hee University Hospital, Korea, 5.Department of Pulmonary and Critical Care Medicine, Chung Nam National University Medical Center, Korea）

[EngO3-5] Effect of high-flow via non-rebreathing face mask compared to nasal cannula on nasopharyngeal CPAP, gas exchange and clinical outcome after extubation in surgical patients

Sunthiti Morakul[1], Poungrat Thungtitigul[2], Preeda Sumritpradit[3], Pongsasit Singhatas[3], Viratch Tangsujaritvijit[4] （1.Department of Anesthesiology, Ramathibodi Hospital, Mahidol University, Thailand, 2.Critical care unit, Department of Medicine, Vajira Hospital, Navamindradhiraj University, Thailand, 3.Department of Surgery, Ramathibodi Hospital, Mahidol University, Thailand, 4.Pulmonary and Critical care unit, Department of Medicine, Ramathibodi Hospital, Mahidol University, Thailand）

[EngO3-6] Effect of intraoperative PEEP setting guided by esophageal pressure measurement on oxygenation during laparoscopic gynecologic surgery

Annop Piriyapatsom, Sanchai Phetkampang （Department of Anesthesiology, Faculty of Medicine Siriraj Hospital, Mahidol University, Thailand）

English Session

[EngO4] English Session4

Chair:Takashi Tagami(Department of Emergency and Critical Care Medicine, Nippon Medical School Tama Nagayama Hospital, Japan)
9:50 AM - 10:50 AM 第11会場 (国立京都国際会館1F Room C-2)

[EngO4-1] Effectiveness of delta Saturation of brain tissue (StO_2) in pre-hospital settings: Pilot study

Jumpei Tsukuda, Takeshi Kawaguchi, Seitaro Sugawara, Kentaro Okamoto, Takaki Naito, Takuro Endo, Kenichiro Morisawa, Nobuhiko Shimozawa, Shigeki Fujitani, Yasuhiko Taira （Department of Emergency and Critical Care Medicine, St. Marianna University School of Medicine, Japan）

[EngO4-2] Recognition of low body temperature and its association with outcome in bacteremic patients admitted to emergency and critical care center

Nobuaki Shime, Satoshi Yamaga （Department of Emergency and Critical Care Medicine, Hiroshima University, Japan）

[EngO4-3] Synergistic cytoprotection by co-treatment with dexamethasone and rapamycin against inflammatory cytokine-induced alveolar epithelial cell injury

Kyungho Chang[1], Ken Kuwajima[2], Ai Furuta[2], Masahiko Bougaki[2], Yoshitsugu Yamada[2], Shigehito Sawamura[1] （1.Anesthesiology and Intensive Care Unit, Teikyo University School of Medicine, Japan, 2.Anesthesiology and Pain Relief Center, University

of Tokyo Hospital, Japan）

[EngO4-4] Crucial role of IL-1R signaling in neutrophils to increase lung permeability in LPS/mechanical ventilation acute lung injury

Nobuyuki Nosaka, Timothy R Crother, Shuang Chen, Moshe Arditi, Kenichi Shimada （Department of Pediatrics, Cedars-Sinai Medical Center, USA）

[EngO4-5] Mortality prediction among sepsis patients using a combination of qSOFA, National Early Warning Score, age, gender and serum lactate levels

Chie Tanaka, Takashi Tagami, Shin Sato, Akiko Takehara, Junya Kaneko, Reo Fukuda, Saori Kudo, Masamune Kuno, Kyoko Unemoto （Department of Emergency and Critical Care Medicine, Nippon Medical School Tamanagayama Hospital, Japan）

[EngO4-6] Nebulized adrenaline attenuates lung alveolar and interstitial edema compared to phenylephrine and salbutamol in ovine burn and smoke inhalation injury model

Satoshi Fukuda[1,2], Koji Ihara[1,3], Yosuke Niimi[1,3], Ernesto Lopez[1], Keibun Liu[1], Clark R. Andersen[1,4], Robert A. Cox[2,5], David N. Herndon[1,2], Donald S. Prough[1,2], Perenlei Enkhbaatar[1,2] （1.Department of Anesthesiology, University of Texas Medical Branch at Galveston, USA, 2.Shriners Hospital for Children, USA, 3.Department of Plastic and Reconstructive Surgery, Tokyo Women's Medical University, Japan, 4.Department of Preventive Medicine &Community Health, Office of Biostatistics, University of Texas Medical Branch, Galveston, USA, 5.Department of Pathology, University of Texas Medical Branch, Galveston, USA）

English Session

[EngO5] English Session5

Chair:Hideo Inaba(Department of Circulatory Emergency and Resuscitation Science, Kanazawa University Graduate School of Medicine, Japan)

10:55 AM - 11:55 AM 第11会場 (国立京都国際会館1F Room C-2)

[EngO5-1] Feeding practices of mechanically ventilated intensive care patients: an evaluation of overfeeding and clinical outcomes

Aiko Tanaka[1,2], Kate Hamilton[3], Glenn Eastwood[2], Daryl Jones[2], Rinaldo Bellomo[2] （1.Department of Anesthesiology and Intensive Care Medicine, Osaka University, Japan, 2.Department of Intensive Care, Austin Hospital, Australia, 3.Nutrition and Dietetic Department, Austin Hospital, Australia）

[EngO5-2] Efficacy and safety of fibrinogen concentrate in patients with hemorrhagic shock: a single-center experience

Masakazu Nitta, Hiroshi Endoh, Tadayuki Honda, Hiroki Shimizu, Hiroyuki Honda, Yoshifumi Hoshino, Takashi Hazama, Natsuo Kamimura （Niigata University Medical and Dental Hospital, Advanced Disaster Medicine and Emergency Critical Care Center, Japan）

[EngO5-3] Circulating activated protein C levels in septic patients treated with recombinant human soluble thrombomodulin

Takuro Arishima[1], Takashi Ito[1,2], Tomotsugu Yasuda[1], Nozomi Yashima[3], Chinatsu Kamikokuryo[3], Hiroaki Furubeppu[1], Takahiro Futatsuki[1], Hiroyuki Haraura[1], Ikuro Maruyama[2], Yasuyuki Kakihana[1,3] （1.Emergency and Critical Care Center, Kagoshima University Hospital, Japan, 2.Systems Biology in Thromboregulation, Kagoshima University Graduate School of Medical and Dental Sciences, Japan, 3.Emergency and Intensive Care Medicine, Kagoshima University Graduate School of Medical and Dental Sciences, Japan）

[EngO5-4] Association of liver enzyme with morbidity and mortality in traumatic liver injur y patients

Ginthasuphang Wangsapthawi, Kaweesak Chittawatanarat （Division of Surgical Critical Care and Trauma, Department of Surgery, Faculty of Medicine, Chiang Mai University, Thailand）

[EngO5-5] A new predictive equation for resting energy expenditure in mechanically ventilated Thai patients

Phoonsak Limraksasin[1], Napplika Kongpolprom[2] （1.Division of Critical Care Medicine, Department of Anesthesiology, King Chulalongkorn Memorial Hospital, Thailand, 2.Division of Pulmonary and Critical Care Medicine, Department of Medicine, King Chulalongkorn Memorial Hospital, Thailand）

[EngO5-6] Comparison of measured energy expenditure using indirect calorimetry versus predictive equations for liver transplant recipients

Seok-Joon Lee[1], Hak-Jae Lee[2], Yooun-Joong Jung[2], Minkyu Han[3], Suk-Kyung Hong[2] （1.College of Medicine, University of Ulsan, Korea, 2.Division of

Acute Care Surgery, Department of Surgery, University of Ulsan College of Medicine, Asan Medical Center, Korea, 3.Department of Clinical Epidemiology and Biostatistics, University of Ulsan, Korea）

English Session

[EngO6] English Session6

Chair:Takeshi Suzuki(Department of Anesthesiology, Keio University School of Medicine, Japan)
2:00 PM - 3:00 PM 第11会場 (国立京都国際会館1F Room C-2)

[EngO6-1] Evaluation of clinical pharmacist intervention in surgical intensive care unit

Jiyoung Kim, Jonghee Ko, Soohyun Kim, Eunsun Son, Jeongmin Kim, Sungwon Na （Department of Pharmacy, Anesthesiology and Pain Medicine, Yonsei University College of Medicine, Korea）

[EngO6-2] A unique strategy for large bowel perforation with ventriculo-peritoneal shunt: Conversion to ventriculo-atrial shunt

Shota Akabane, Hirokazu Iijima, Shoichi Nakajima, Yukari Kobayashi, Kazunao Watanabe （Tokyo Nishi Tokushukai Hosipital, Japan）

[EngO6-3] Influenza-associated septic shock accompanied by septic cardiomyopathy that developed in summer and mimicked fulminant myocarditis

Kei Suzuki, Ryo Esumi, Kaoru Ikejiri, Asami Ito, Yoshiaki Iwashita, Ken Ishikura, Masaki Fujioka, Hiroshi Imai （Mie University Hospital, the Emergency and Critical Care Center, Japan）

[EngO6-4] Association between appropriate empiric antimicrobial therapy and mortality from bloodstream infections in the intensive care unit

Satoshi Yamaga, Nobuaki Shime, Shinichiro Ohshimo （Department of Emergency and Critical Care Medicine, Graduate School of Biomedical and Health Sciences, Hiroshima University, Japan）

[EngO6-5] Effect of healthcare-associated infections on the length of pediatric intensive care unit stay

Takeshi Hatachi, Jumpei Okumura, Kota Yoshida, Mami Yamada, Takaaki Akamatsu, Masashi Taniguchi, Jun Takeshita, Kanako Isaka, Kazue Moon, Muneyuki Takeuchi （Osaka Women's and Children's Hospital, Japan）

[EngO6-6] Open label prospective randomised control study of high cut point level of procalcitonin guided antibiotic therapeutic protocol in surgical critically ill patients

Kaweesak Chittawatanarat, Narain Chotirosniramit, Kamtone Chandacham, Tidarat Jirapongcharoenlap, Rungnapa Peerakam, Mudjalin Areerug （Division of Surgical Critical Care and Trauma, Department of Surgery, Faculty of Medicine, Chiang Mai University, Thailand）

English Session

[EngO7] English Session7

Chair:Kenji Wakabayashi(Department of Intensive Care Medicine, Tokyo Medical and Dental University, Japan)
3:05 PM - 4:05 PM 第11会場 (国立京都国際会館1F Room C-2)

[EngO7-1] Characteristics of wound infections among patients injured during torrential rain and landslides, in the 2018 disaster in west Japan

Kazuya Kikutani[1], Michihito Kyo[1], Junji Itai[1], Shinji Kusunoki[2], Takao Yamanoue[2], Yasumasa Iwasaki[3], Itsuo Nakagawa[4], Hiroshi Naitou[5], Masami Ishikawa[6], Nobuaki Shime[1] （1.Department of Emergency and Critical Care Medicine, Graduate School of Biomedical and Health Sciences, Hiroshima University, Japan, 2.Emergency Department, Hiroshima Prefectural Hospital, Japan, 3.Emergency Department, Kure Medical Center and Chugoku Cancer Center, Japan, 4.Emergency Department, Chugoku Rosai Hospital, Japan, 5.Department of Emergency Medicine, Hiroshima Citizens Hospital, Japan, 6.Emergency Department, Kure Kyosai Hospital, Japan）

[EngO7-2] Potential benefits of acute-phase cardiac rehabilitation in the intensive care unit for patients with cardiovascular disease -A retrospective observational study-

Nobuaki Hamazaki[1], Ryota Matsuzawa[1], Kohei Nozaki[1], Takafumi Ichikawa[1], Kentaro Kamiya[2], Kazumasa Miida[1], Tomotaka Koike[3], Emi Maekawa[4], Masayasu Arai[5], Takashi Masuda[2] （1.Department of Rehabilitation, Kitasato University Hospital, Japan, 2.Department of Rehabilitation, Kitasato University School of Allied Health Sciences, Japan, 3.Intensive Care Center, Kitasato University Hospital, Japan, 4.Department of Cardiovascular Medicine, Kitasato

University School of Medicine, Japan, 5.Department of Anesthesiology, Kitasato University School of Medicine, Japan）

[EngO7-3] Influencing factors on the changes of ICU family members' satisfaction

Soyoung Yang[1], Hye Ri Choi[3], In-Ho Yang[1], Mira Song[1], Jun Ki Min[1], Minji Lee[1], Yee Hyung Kim[2], Sung Wook Kang[2] （1.Department of Internal Medicine, Kyung Hee University Hospital at Gang Dong, Korea, 2.Department of Pulmonary and Critical Care Medicine, Kyung Hee University Hospital at Gang Dong, Korea, 3.School of Health in Social Science, University of Edinburgh, UK）

[EngO7-4] Intergrated clinical reasoning assessment in simulation crisis management class

Kanya Kumwilaisak[1], Toonchai Indrambarya[1], Danai Wangsaturaka[2], Paweenuch Bootjeamjai[1] （1.Division of Critical Care, Department of Anesthesiology, King Chulalongkorn Memorial Hospital, Thailand, 2.Department of Pharmacology Faculty of Medicine, Chulalongkorn University, Thailand）

[EngO7-5] The epidemiology and characteristics of acute kidney injur y in the intensive care unit in resource limited settings: *A prospective multicenter study*

Nattachai Srisawat[1,2], Win Kulvichit[1,2], Noppathorn Mahamitra[1], Cameron Hurst[3], Kearkiat Praditpornsilpa[1], Nuttha Lumlertgul[1], Kriang Tungsanga[1], Somchai Eiam-Ong[1], Visith Sitprija[1,4], John A Kellum[2], Konlawij Trongtrakul[5], SEA-AKI study group （1.Division of Nephrology, Department of Medicine, Faculty of Medicine, Chulalongkorn University, and King Chulalongkorn Memorial Hospital, Thailand, 2.Center for Critical Care Nephrology; The CRISMA Center, Department of Critical Care Medicine, University of Pittsburgh School of Medicine, USA, 3.Statistics Unit, QIMR Berghofer Medical Research Institute, Australia, 4.Queen Saovabha Memorial Institute, Thai Red Cross, Thailand, 5.Vajira Hospital, Navamindradhiraj University, Thailand）

[EngO7-6] Predictive factors of abnormal finding detected by computerized tomography scan of brain among medical critically ill patients

Surat Tongyoo[1], Meitee Vichutavate[1], Tipa Chakorn[2], Chairat Permpikul[1] （1.Department of Internal Medicine, Faculty of Medicine, Siriraj hospital, Mahidol University, Thailand, 2.Department of Emergency Medicine, Faculty of Medicine, Siriraj hospital, Mahidol University, Thailand）

English Session

[EngO8] English Session8

Chair:Takaki Naito(Department of Emergency and Critical Care Medicine, St. Marianna University School of Medicine, Japan)
4:10 PM - 5:10 PM 第11会場 (国立京都国際会館1F Room C-2)

[EngO8-1] Newly introduced educational program on coping with ICU surge during the Mass Casualty Incident

Takamitsu Kodama[1], Eiji Kawamoto[2], Yasuhiro Irie[3], Yoichi Kase[4], Masashi Nakagawa[5] （1.Aichi Medical University, Center for Disaster Medical Sciences, Japan, 2.Mie University Hospital, Medical Emergency Center, Japan, 3.Seirei Yokohama Hospital, Department of Emergency Medicine, Japan, 4.Jikei University Kashiwa Hospital, Department of Anesthesiology, Japan, 5.Tokyo Women's Medical University, Department of Intensive Care Medicine, Japan）

[EngO8-2] Development of an easy-to-use questionnaire for critical care nursing competence related to patient safety in Japan: a cross-sectional study

Masatoshi Okumura[1], Tomonori Ishigaki[2], Kazunao Mori[1], Yoshihiro Fujiwara[1] （1.Department of Anesthesiology, Aichi Medical University, Japan, 2.Department of Business Administration, Nanzan University, Japan）

[EngO8-3] The patient's life inside hospital difference between Japan and Thailand

Nobuichiro Tamura[1], Tawatchai Impool[2] （1.Kurashiki Central Hospital, Japan, 2.KhonKaen Hospital, Thailand）

[EngO8-4] Successful management fatal systemic air embolism of CT-guided lung biopsy: Case report

Yi-Pin Chou[1,3,4], Tung-Ho Wu[2,3], Hsing-Lin Lin[3] （1.Division of Thoracic Surgery, Department of Surgery, Veterans General Hospital, Taiwan, 2.Division of Cardiovascular Surgery, Department of Surgery, Veterans General Hospital, Taiwan, 3.Department of Critical Care Medicine, Veterans

General Hospital, Taiwan, 4.Division of Trauma, Department of Emergency, Veterans General Hospital, Taiwan）

[EngO8-5] Trauma system including trauma center: a death review from premature trauma center in Korea

Byungchul Yu, Mina Lee, Giljae Lee, Jungnam Lee （Gachon University Gil Medical Center, Korea）

[EngO8-6] Effects of an isotonic balanced sodium solution and acetated Ringer’ s solution on the incidence of hyponatremia in patients who have cardiac surgery

Sunthiti Morakul[1], Naruemol Prachanpanich[1], Piyarat Sittiwanna[1], Sumethee Jiraratkul[2] （1.Department of Anesthesiology, Faculty of Medicine, Ramathibodi Hospital, Mahidol University, Thailand, 2.Department of Surgery, Faculty of Medicine, Ramathibodi Hospital, Mahidol University, Thailand）

English Session

[EngO3] English Session3

Chair:Atsushi Kawaguchi(University of Montreal, Canada)

Sat. Mar 2, 2019 8:45 AM - 9:45 AM 第11会場 (国立京都国際会館1F Room C-2)

[EngO3-1] Clinical analysis of prolonged mechanical ventilation＞72hrs following acute type A aortic dissection repair

Genta Chikazawa, Kentaro Tamura, Arudo Hiraoka, Toshinori Totsugawa, Atsuhisa Ishida, Satoko Ishii, Taichi Sakaguchi, Hidenori Yoshitaka （Department of Cardiovascular Surgery and Surgical ICU, The Sakakibara Heart Institute of Okayama, Japan）

[EngO3-2] Measurement of esophageal pressure to assess extubation readiness in a neonate with congenital diaphragmatic hernia: its feasibility and usefulness

Masashi Taniguchi, Yu Inata, Takeshi Hatachi, Yoshiyuki Shimizu, Kazuya Tachibana, Muneyuki Takeuchi （Department of Intensive Care Medicine, Osaka Women’s and Children’s Medical Center, Japan）

[EngO3-3] Current practice of high-flow nasal cannula-the pilot study

Je Hyeong Kim[1], Byun Ki Kim[2], Su A Kim[1], You Sang Ko[3], Won Gun Kwack[4], So Young Park[5] （1.Department of Critical Care Medicine, Korea University Ansan Hospital, Korea, 2.Division of Pulmonology, Department of Internal Medicine, Korea University Ansan Hospital, Korea, 3.Division of Pulmonary, Allergy and Critical Care Medicine, Department of Internal Medicine, Kangdong Sacred Heart Hospital, Korea, 4.Division of Pulmonary, Allergy and Critical Care Medicine, Department of Internal Medicine, Kyung Hee University Hospital, Korea, 5.Department of Pulmonary and Critical Care Medicine, Chung Nam National University Medical Center, Korea）

[EngO3-5] Effect of high-flow via non-rebreathing face mask compared to nasal cannula on nasopharyngeal CPAP, gas exchange and clinical outcome after extubation in surgical patients

Sunthiti Morakul[1], Poungrat Thungtitigul[2], Preeda Sumritpradit[3], Pongsasit Singhatas[3], Viratch Tangsujaritvijit[4] （1.Department of Anesthesiology, Ramathibodi Hospital, Mahidol University, Thailand, 2.Critical care unit, Department of Medicine, Vajira Hospital, Navamindradhiraj University, Thailand, 3.Department of Surgery, Ramathibodi Hospital, Mahidol University, Thailand, 4.Pulmonary and Critical care unit, Department of Medicine, Ramathibodi Hospital, Mahidol University, Thailand）

[EngO3-6] Effect of intraoperative PEEP setting guided by esophageal pressure measurement on oxygenation during laparoscopic gynecologic surgery

Annop Piriyapatsom, Sanchai Phetkampang （Department of Anesthesiology, Faculty of Medicine Siriraj Hospital, Mahidol University, Thailand）

(Sat. Mar 2, 2019 8:45 AM - 9:45 AM 第11会場)

[EngO3-1] Clinical analysis of prolonged mechanical ventilation＞72hrs following acute type A aortic dissection repair

Genta Chikazawa, Kentaro Tamura, Arudo Hiraoka, Toshinori Totsugawa, Atsuhisa Ishida, Satoko Ishii, Taichi Sakaguchi, Hidenori Yoshitaka （Department of Cardiovascular Surgery and Surgical ICU, The Sakakibara Heart Institute of Okayama, Japan）

Background The aim of this study was to clarify influencing factors of prolonged mechanical ventilation (PMV) following acute type A aortic dissection repair (AAADR) on clinical outcomes. ***Methods and results*** A total of 325 patients who underwent AAADR in our institute between 2009 and 2017 were enrolled. They were divided into two groups based on the duration of mechanical ventilation ; 72h or less (Group A; n=250) and more than 72h (Group B; n=75). Multivariate analysis was utilized to identify influencing factors of PMV. Clinical outcomes were compared between both groups. Preoperative backgrounds showed the percentages of those with chronic obstructive pulmonary disease (COPD) (13% vs 3%, p=0.002), redo operative cases (8% vs 1%, p=0.006), mal-perfusion to coronary arteries (11% vs 1%, p<0.001) or lower limbs (20% vs 8%,p=0.004) were significantly higher in Group B than in Group A. Procedure related data revealed that operation time (OT) (min) (485±140 vs 387±97, p<0.001), cardio-pulmonary bypass time(min) (251±78, 212±57, p<0.001), aortic cross clamp time(min) (156±52 vs 132±36, p<0.001) , and postoperative ICU stay(days) (34±20 vs 27±16, p<0.001) were significantly longer in group B than in group A. There were more intraoperative bleeding amounts (IBM) (ml) (3128±1852 vs 2093±1314, p<0.001) identified in Group B. The percentages of those complicated with postoperative acute kidney injury (AKI) (17% vs 1%, p<0.001) were significantly higher in Group B. 30-day mortality was significantly higher in Group B than in Group A (23% vs 5%, p<0.001). Multivariate analysis demonstrated that COPD (p=0.004), preoperative mal-perfusion to vital organs or lower limbs (p=0.009), OT (min) (p=0.039), and IBM (ml) (p=0.036) were significantly influencing factors of PMV. 5-year overall survival (44.2% vs 68%, Log rank-test;P<0.001) was significantly worse in Group B than in Group A. ***Conclusions*** In the present study, COPD, mal-perfusion to vital organs or lower limbs, prolonged OT, exacerbated IBM were considered to be influencing factors of PMV. Identifying these factors could help to establish optimal perioperative management strategies following AAADR.

(Sat. Mar 2, 2019 8:45 AM - 9:45 AM 第11会場)

[EngO3-2] Measurement of esophageal pressure to assess extubation readiness in a neonate with congenital diaphragmatic hernia: its feasibility and usefulness

Masashi Taniguchi, Yu Inata, Takeshi Hatachi, Yoshiyuki Shimizu, Kazuya Tachibana, Muneyuki Takeuchi （Department of Intensive Care Medicine, Osaka Women’s and Children’s Medical Center, Japan）

Background: Congenital diaphragmatic hernia (CDH) is a disease in which intraperitoneal organs occupies the thoracic cavity through diaphragm defects and makes an ipsilateral lung hypoplastic. Diaphragmatic hernia repair is usually performed within several days after birth. Because some degree of tachypnea and increased work of breathing (WOB) after the repair are the rule rather than the exception due to the pulmonary hypoplasia and the malfunction of the diaphragm, assessment of extubation readiness in patients with CDH is often challenging. WOB measured by esophageal pressure could be a reliable indicator for avoiding extubation failure. However, the reliability and usefulness of measuring esophageal pressure in

patient with CDH have not been reported.
Case: A 1-month-old boy, who had undergone surgical repair of right CDH two days after birth, had been mechanically ventilated since birth. Since the right lung remained hypoplastic and collapsed, gas exchange was performed almost entirely by the left lung. Upon spontaneous breathing trial at pressure support (PS) of 0cmH_2O and positive end-expiratory pressure (PEEP) of 7 cmH_2O, respiratory parameters were favorable for extubation: the rapid shallow breathing index was 7.9 and respiratory compliance was 0.7 ml/cmH_2O/kg. His respiratory efforts, however, increased as pressure support (PS) decreased; it was therefore uncertain if extubation would be successful. To better judge extubation readiness, we further assessed respiratory muscle strength and work of breathing (WOB) by measuring esophageal pressure (Pes). First, we inserted an esophageal balloon catheter and measured the changes in esophageal pressure (Δ Pes) and airway pressure (Δ Paw) during occlusion test to confirm the correct positioning of the catheter. Since the ratio of Δ Pes to Δ Paw was 0.81, within a recommended range of 0.8-1.2, esophageal pressure in this case was deemed a reliable surrogate of pleural pressure. Maximal inspiratory pressure was 21mmHg (28.6cmH_2O), suggesting that respiratory muscle strength was strong enough for extubation. On the other hand, during the mechanical ventilation with PS of 8cmH_2O and PEEP of 6cmH_2O, Δ Pes was 4cmH_2O and the change in transpulmonary pressure was 7cmH_2O; based on this results, we speculated WOB would not be very high after extubation. Finally, the patient was extubated successfully without reintubation due to respiratory failure.
Conclusion: Measurement of esophageal pressure in a neonate with CDH is feasible and may help assessing WOB and extubation readiness.

(Sat. Mar 2, 2019 8:45 AM - 9:45 AM 第11会場)

[EngO3-3] Current practice of high-flow nasal cannula-the pilot study

Je Hyeong Kim[1], Byun Ki Kim[2], Su A Kim[1], You Sang Ko[3], Won Gun Kwack[4], So Young Park[5] （1.Department of Critical Care Medicine, Korea University Ansan Hospital, Korea, 2.Division of Pulmonology, Department of Internal Medicine, Korea University Ansan Hospital, Korea, 3.Division of Pulmonary, Allergy and Critical Care Medicine, Department of Internal Medicine, Kangdong Sacred Heart Hospital, Korea, 4.Division of Pulmonary, Allergy and Critical Care Medicine, Department of Internal Medicine, Kyung Hee University Hospital, Korea, 5.Department of Pulmonary and Critical Care Medicine, Chung Nam National University Medical Center, Korea）

[Background] High-flow nasal cannula (HFNC) is a recently developed oxygen (O2) supply device. In many hypoxemic conditions, it has been reported to improve clinical outcomes, resulting in increased use in clinical practice. The purpose of this pilot study is to examine the current practice of HFNC in Korea. [Methods] From April 1 to June 30, 2018, we retrospectively reviewed medical records of 354 adult patients who were applied HFNC in 4 university hospitals. [Results] The mean age of the patients was 70.7 years old and 64.4% was male. Most were medical patients (n=308). Among them, 174 (56.5%) were patients admitted to non-pulmonology division. The most common cause of O2 therapy was pulmonary conditions including pneumonia (64.4%). The nasal cannula was most commonly applied device prior to HFNC (37.7%). The applied locations of HFNC were in ward (43.2%), intensive care uni t(ICU, 41.5%) and emergency room (15.3%). Half and one third of cases were decided by resident and pulmonologist, respectively. Successful HFNC weaning rate was 57.6% and 71 patients (20.1%) were escalated to NIV or intubation. In multivariate analysis, PaO2 prior to HFNC was associated with escalation to NIV or intubation (p=0.006), and O2 saturation (p=0.017) and respiration rate (p=0.001) just after HFNC application were associated with death during HFNC. [Conclusion] In current, HFNC is common O2 supply device in ward and ICU, and several factors associated with HFNC failure. More precise survey is needed to examine the status of HFNC use and

evaluate the factors associated with outcome of HFNC.
* This abstract was previously presented as poster in 2018 Annual Conference of Korean Academy of Tuberculosis and Respiratory Diseases.

(Sat. Mar 2, 2019 8:45 AM - 9:45 AM 第11会場)

[EngO3-5] Effect of high-flow via non-rebreathing face mask compared to nasal cannula on nasopharyngeal CPAP, gas exchange and clinical outcome after extubation in surgical patients

Sunthiti Morakul[1], Poungrat Thungtitigul[2], Preeda Sumritpradit[3], Pongsasit Singhatas[3], Viratch Tangsujaritvijit[4] （1.Department of Anesthesiology, Ramathibodi Hospital, Mahidol University, Thailand, 2.Critical care unit, Department of Medicine, Vajira Hospital, Navamindradhiraj University, Thailand, 3.Department of Surgery, Ramathibodi Hospital, Mahidol University, Thailand, 4.Pulmonary and Critical care unit, Department of Medicine, Ramathibodi Hospital, Mahidol University, Thailand）

Objectives: To compare the nasopharyngeal pressure that generates by using high-flow face mask(HFFM) compare with the high-flow nasal cannula(HFNC) and conventional oxygen therapy after extubation in surgical patients
Methods and materials: The present research conducted a randomized controlled trial in patients who admitted to surgical intensive care unit, Ramathibodi hospital and ready for extubation after spontaneous breathing trial between November 15, 2016 and October 31, 2017. The patients were randomized to HFFM, HFNC with the flow rate 50 L/min or aerosol mask with nebulizer flow 10 L/min after extubation. The nasopharyngeal pressures and gas exchange during oxygen therapy was records and analyzed. Other outcomes were dyspnea score, comfortable score, re-intubation rate, ICU lengths of stay, hospital lengths of stay and mortality rate.
Results: Sixty patients were enrolled (20 patients in each group).The gas exchange were not different between group ($p > 0.05$). The expiratory nasopharyngeal pressure that generate via using HFFM, HFNC, conventional oxygen therapy were 0.5, 1.8 and 0.35 cmH_2O ($p < 0.01$),respectively. The mean nasopharyngeal pressure that generate via using HFFM, HFNC, conventional oxygen therapy were 1.2, 2.2 and 0.85 cmH_2O ($p < 0.01$),respectively. The Inspiratory nasopharyngeal pressure that generate via using HFFM, HFNC, conventional oxygen therapy were 0.1, 1.1 and 0.03 cmH_2O ($p = 0.31$),respectively. The dyspnea score, comfortable score, re-intubation rate, ICU lengths of stay, hospital lengths of stay and mortality rate were not difference ($p > 0.05$).
Conclusions: The present study showed no difference in gas exchange between study groups. HFNC can generate mean nasopharyngeal pressure and expiratory nasopharyngeal pressure superior to HFFM and conventional oxygen therapy. The dyspnea score, comfortable score, re-intubation rate, ICU lengths of stay, hospital lengths of stay and mortality rate were not different between groups.
Keywords: Surgical patients, High-flow nasal cannula, High-flow face mask, Conventional oxygen therapy, Post-extubation

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(Sat. Mar 2, 2019 8:45 AM - 9:45 AM 第11会場)

[EngO3-6] Effect of intraoperative PEEP setting guided by esophageal

pressure measurement on oxygenation during laparoscopic gynecologic surgery

Annop Piriyapatsom, Sanchai Phetkampang （Department of Anesthesiology, Faculty of Medicine Siriraj Hospital, Mahidol University, Thailand）

Background: Setting of positive end-expiratory pressure (PEEP) may have an important role in respiratory management during laparoscopic surgery[1-3]. However, there is no consensus on the optimal PEEP level or the best method to set PEEP during laparoscopic surgery. The aim of this study was to investigate whether setting of PEEP guided by measurement of esophageal pressure would affect oxygenation during laparoscopic gynecologic surgery

Method: This was a randomized controlled study conducted from April to June 2018. Forty-four patients were equally divided into the intervention group (ESO) and the control group (CON). In ESO, PEEP was set according to esophageal pressure measured to maintain transpulmonary pressure during expiration between 0 and 5 cm H_2O. In CON, PEEP was constantly set at 5 cm H_2O. Gas exchange, lung mechanics, and hemodynamic parameters were recorded after induction and intubation (T0) and at 15 and 60 minutes after gas insufflation (T1 and T2, respectively) and data were analysed and compared within and between groups. A *p*-value of less than 0.05 was considered statistical significance.

Results: The average age of all patients was 41.1±7.6 years old and 25 (56.8%) of theses had ASA I. The average anesthetic and insufflation time were 191±70 and 136±63 minutes, respectively. PEEP during T1 and T2 were significantly higher in ESO than CON (T1, 12.5±1.9 vs. 5.0±0.0 cm H_2O, $p<0.001$ and T2, 12.4±1.9 vs. 5.0±0.0 cm H_2O, $p<0.001$). In CON, PaO_2 during T1 and T2 were significantly dropped from T0 (T0, 203±44 vs. T1, 183±41 mm Hg, $p=0.012$ and vs. T2, 184±39 mm Hg, $p=0.008$). In ESO, there was no significant change in PaO_2 from T0 during T1 and T2 (T0, 211±35 vs. T1, 202±42 mm Hg, $p=0.124$ and vs. T2, 204±32 mm Hg, $p=0.177$). However, when compared between groups, the changes in PaO_2 were not significantly different (T1; CON, -20±33 vs. ESO, -9±25 mm Hg, $p=0.220$ and T2; CON, -19±30 vs. ESO, -6±21, $p=0.122$). There was no significant difference between groups in terms of hemodynamic parameters, adverse events, and hospital length of stay.

Conclusions: PEEP setting guided by esophageal pressure measurement might prevent deceased oxygenation in patients underwent laparoscopic gynecologic surgery. Although, this change did not reach statistical significance. A larger trial might be warranted.

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English Session

[EngO4] English Session4

Chair:Takashi Tagami(Department of Emergency and Critical Care Medicine, Nippon Medical School Tama Nagayama Hospital, Japan)

Sat. Mar 2, 2019 9:50 AM - 10:50 AM 第11会場 (国立京都国際会館1F Room C-2)

[EngO4-1] Effectiveness of delta Saturation of brain tissue (StO_2) in pre-hospital settings: Pilot study

Jumpei Tsukuda, Takeshi Kawaguchi, Seitaro Sugawara, Kentaro Okamoto, Takaki Naito, Takuro Endo, Kenichiro Morisawa, Nobuhiko Shimozawa, Shigeki Fujitani, Yasuhiko Taira （Department of Emergency and Critical Care Medicine, St. Marianna University School of Medicine, Japan）

[EngO4-2] Recognition of low body temperature and its association with outcome in bacteremic patients admitted to emergency and critical care center

Nobuaki Shime, Satoshi Yamaga （Department of Emergency and Critical Care Medicine, Hiroshima University, Japan）

[EngO4-3] Synergistic cytoprotection by co-treatment with dexamethasone and rapamycin against inflammatory cytokine-induced alveolar epithelial cell injury

Kyungho Chang[1], Ken Kuwajima[2], Ai Furuta[2], Masahiko Bougaki[2], Yoshitsugu Yamada[2], Shigehito Sawamura[1] （1.Anesthesiology and Intensive Care Unit, Teikyo University School of Medicine, Japan, 2.Anesthesiology and Pain Relief Center, University of Tokyo Hospital, Japan）

[EngO4-4] Crucial role of IL-1R signaling in neutrophils to increase lung permeability in LPS/mechanical ventilation acute lung injury

Nobuyuki Nosaka, Timothy R Crother, Shuang Chen, Moshe Arditi, Kenichi Shimada （Department of Pediatrics, Cedars-Sinai Medical Center, USA）

[EngO4-5] Mortality prediction among sepsis patients using a combination of qSOFA, National Early Warning Score, age, gender and serum lactate levels

Chie Tanaka, Takashi Tagami, Shin Sato, Akiko Takehara, Junya Kaneko, Reo Fukuda, Saori Kudo, Masamune Kuno, Kyoko Unemoto （Department of Emergency and Critical Care Medicine, Nippon Medical School Tamanagayama Hospital, Japan）

[EngO4-6] Nebulized adrenaline attenuates lung alveolar and interstitial edema compared to phenylephrine and salbutamol in ovine burn and smoke inhalation injury model

Satoshi Fukuda[1,2], Koji Ihara[1,3], Yosuke Niimi[1,3], Ernesto Lopez[1], Keibun Liu[1], Clark R. Andersen[1,4], Robert A. Cox[2,5], David N. Herndon[1,2], Donald S. Prough[1,2], Perenlei Enkhbaatar[1,2] （1.Department of Anesthesiology, University of Texas Medical Branch at Galveston, USA, 2.Shriners Hospital for Children, USA, 3.Department of Plastic and Reconstructive Surgery, Tokyo Women's Medical University, Japan, 4.Department of Preventive Medicine &Community Health, Office of Biostatistics, University of Texas Medical Branch, Galveston, USA, 5.Department of Pathology, University of Texas Medical Branch, Galveston, USA）

(Sat. Mar 2, 2019 9:50 AM - 10:50 AM 第11会場)

[EngO4-1] Effectiveness of delta Saturation of brain tissue (StO_2) in pre-hospital settings: Pilot study

Jumpei Tsukuda, Takeshi Kawaguchi, Seitaro Sugawara, Kentaro Okamoto, Takaki Naito, Takuro Endo, Kenichiro Morisawa, Nobuhiko Shimozawa, Shigeki Fujitani, Yasuhiko Taira （Department of Emergency and Critical Care Medicine, St. Marianna University School of Medicine, Japan）

【 Background】
There are no specific indicators to evaluate cardiopulmonary resuscitation (CPR) in the current guidelines. Recently, CPR with near-infrared spectroscopy (NIRS) has been reported to be effective for predicting return of spontaneous circulation (ROSC).
【 Objective】
We evaluated whether there exists any association between saturation of brain tissue (StO_2) in ambulance and ROSC for out-of-hospital cardiopulmonary arrest (OHCA) patients.
【 Methods】
This prospective cohort study was conducted from May 2017. OHCA patients delivered to our emergency department (ED) were divided into 2 groups: ROSC group and Non-ROSC group. We examined the change in StO_2 (delta StO_2) using a portable NIRS device in ambulance. Delta StO_2 was defined as the difference between the initial StO_2 first displayed on the monitor in the ambulance and the final StO_2 shown on the monitor at the arrival of the patient to the ED (delta StO_2 = final StO_2 - initial StO_2). Although this research is still ongoing, analysis was performed for cases collected from May 2017 to April 2018.
【 Results】
Out of 63 patients, 9 were excluded and the remaining 54 patients were classified as follows; 14 in ROSC group and 39 in Non-ROSC group. Patients in ROSC group were significantly younger and more likely to have their event witnessed. Delta StO_2 of ROSC group was significantly higher than that of Non-ROSC group (4.1% ± 6.5% vs. 1.1% ± 3.4%, $p < 0.036$).
【 Discussion】
Although some studies have evaluated ROSC using delta StO_2 in hospital settings, no study has discussed the effectiveness of delta StO_2 in pre-hospital settings such as ambulance. CPR using delta StO_2 as an indicator for ROSC might be effective in ambulance where only limited devices can be equipped.
【 Conclusion】
This study showed that the higher the delta StO_2 in ambulance, the higher the ROSC rate. Further research with more cases is warranted.

(Sat. Mar 2, 2019 9:50 AM - 10:50 AM 第11会場)

[EngO4-2] Recognition of low body temperature and its association with outcome in bacteremic patients admitted to emergency and critical care center

Nobuaki Shime, Satoshi Yamaga （Department of Emergency and Critical Care Medicine, Hiroshima University, Japan）

Introduction: Abnormal body temperature is one of the frequent abnormal vital sign occurring in patients with life-threatening infection. Of those, low body temperature is associated with higher mortality compared

with normal or high body temperature. The recognition of the "low body temperature" by healthcare providers, however, might be still insufficient, which possibly leads to delayed diagnostic and therapeutic interventions.
Methods: We have conducted a single-center, retrospective observational study evaluating the frequency, recognition of low body temperature and its association with care process and patients' outcome. Consecutive patients >18 years old admitted to an emergency and critical care center at a university-affiliated hospital and diagnosed with bacteremia/fungemia were enrolled. Patients were divided into three groups by body temperature measured on admission; 1) high (BT 38℃, Group H), 2) moderate (BT=36-38℃, Group M) and 3) low (BT<36℃, Group L). All-cause mortality at 28 days was compared. In addition, we assessed the timing of administration for initial empiric therapy specifically in patients diagnosed with infection among the three groups. We also evaluated whether resident doctors who initially cared patients recognized the abnormal (high or low) body temperature.
Results: 233 patients were enrolled; Group H=61(26%), Group M=142(61%), Group L=30(13%). In-hospital mortality was significantly highest in Group L (50%) compared with other groups (Group H= 16%, p=0.0021, and Group M=23%, p=0.0066). Multivariate analysis have shown that the adjusted Odds of dying at 28 days in Group L was 3.65 (95% confidence interval 1.25 to 10.6; *p*=0.018). Proportion of patients receiving early administration of antibiotics <1 h was significantly lower in Group L (10%) compared with Group H (38%) and Group M (18%)（p=0.017). Resident doctors recognized low body temperature as an abnormal sign more infrequently compared with high body temperature.
Conclusions: Hypothermia was a significant factor associated with high in-hospital mortality in critically-ill patients with infection. Underrecognition of low body temperature occurs frequently and might be associated with delayed provision of therapeutic intervention, which might be a factor of the poor outcome.

(Sat. Mar 2, 2019 9:50 AM - 10:50 AM 第11会場)

[EngO4-3] Synergistic cytoprotection by co-treatment with dexamethasone and rapamycin against inflammatory cytokine-induced alveolar epithelial cell injury

Kyungho Chang[1], Ken Kuwajima[2], Ai Furuta[2], Masahiko Bougaki[2], Yoshitsugu Yamada[2], Shigehito Sawamura[1]
（1.Anesthesiology and Intensive Care Unit, Teikyo University School of Medicine, Japan, 2.Anesthesiology and Pain Relief Center, University of Tokyo Hospital, Japan）

(Background)Massive production of inflammatory mediators is one of the main pathophysiological manifestations in sepsis. These inflammatory mediators can directly activate the cellular apoptotic signaling pathway, whereas sepsis-related organ dysfunction is assumed to be deeply associated with cellular apoptosis. Although clinical trials targeting inflammatory mediators to mitigate organ dysfunction in sepsis have been extensively performed, the clinical outcomes of such trials remain far from satisfactory, especially when evaluated on a single-treatment basis. Given the need for better sepsis treatments, we screened various agents with anti-inflammatory properties for cytoprotective effects and identified dexamethasone and rapamycin as candidates with favorable synergistic effects in vitro. The purpose of the present study was to further explore the underlying mechanism of augmented cytoprotection exerted by co-treatment with dexamethasone and rapamycin against inflammatory cytokine-induced cytotoxicity.
(Methods)Human alveolar epithelial cell-derived A549 cells were stimulated with a mixture of inflammatory cytokines (cytomix: IL-1beta, TNF-alpha, and IFN-gamma), which induced cellular injury, including apoptosis. This in vitro model was designed to simulate acute lung injury associated with sepsis. The cells were

pretreated with dexamethasone and rapamycin before the cytomix stimulation. Conditioned medium and cell lysate were subjected to further analysis to determine the degree of cytotoxicity inhibition, and also to identify the cytoprotective signaling pathway exerted by the simultaneous treatment of dexamethasone and rapamycin.
(Results)Either dexamethasone or rapamycin significantly attenuated the cytomix-induced cytotoxicity in A549 cells in a dose-dependent manner. In addition, the simultaneous administration of dexamethasone and rapamycin had a synergistical cytoprotective effect. The applied doses of dexamethasone (10 nM) and rapamycin (1 nM) were considerably below the presumed clinical blood concentrations of each drug. Interestingly, distinct augmentation of c-Jun inhibition and Akt activation was observed when the cells were co-treated with both drugs.
(Conclusions)The synergistic cytoprotective effect of dexamethasone and rapamycin was observed against cytokine-induced cytotoxicity in A549 cells. Augmentation of c-Jun inhibition and Akt activation was inferred to be responsible for the synergism. The combined administration of distinct anti-inflammatory drugs, such as dexamethasone and rapamycin, offers a promising treatment option for alveolar epithelial injury associated with sepsis.

(Sat. Mar 2, 2019 9:50 AM - 10:50 AM 第11会場)

[EngO4-4] Crucial role of IL-1R signaling in neutrophils to increase lung permeability in LPS/mechanical ventilation acute lung injury

Nobuyuki Nosaka, Timothy R Crother, Shuang Chen, Moshe Arditi, Kenichi Shimada （Department of Pediatrics, Cedars-Sinai Medical Center, USA）

Background: Acute respiratory distress syndrome (ARDS) is very serious disease which leads to high mortality rate up to 25%. Due to its direct clinical impact, ARDS is an area of intense research. Neutrophilic lung inflammation is a key pathology of acute lung injury (ALI). Recently, we reported a critical role of NLRP3 inflammasome and interleukin (IL)-1 signaling for the development of hypoxemia in ALI model due to LPS plus high-volume mechanical ventilation (HVV). We hypothesized that IL-1 signaling contributes to the activation of neutrophils which results in the uptick of lung permeability leading to hypoxemia.
Methods: We created a two-hit mouse model of ALI by 2.5-hour long HVV (30 ml/kg) and intratracheal LPS (0.2 mg/kg) which was administered 2 hours before starting HVV. Measures of injury included arterial partial pressure of oxygen and bronchoalveolar lavage (BAL) parameters such as neutrophils counts, albumin and cytokine levels. We assessed the effect of neutrophils or IL-1R signaling against development of ALI using intraperitoneal anti-neutrophil (Ly6G[1A8]) monoclonal antibody (mAb) treatment and *Il-1r1*-deficient mice, respectively.
Results: Our two-hit model achieved significant hypoxemia, alveolar neutrophil infiltration and alveolar leakage. While LPS plus low-volume ventilation (LVV; 7 ml/kg) and LPS+HVV exhibited similar alveolar neutrophil infiltration, only LPS+HVV model had increased lung permeability resulting in hypoxemia although LPS+LVV did not develop hypoxemia. Anti-neutrophil mAb treatment significantly improved the development of hypoxemia and alveolar leakage with inhibition of alveolar neutrophil infiltration. In addition, *Il1r1*-deficient mice had significantly protected from hypoxemia and alveolar leakage despite similar alveolar neutrophil infiltration, suggested that two kinds of neutrophil activation are involved in hypoxemia induced by LPS+HVV. These findings were corroborated by increased myeloperoxidase and neutrophil elastase in BAL as markers of neutrophil activation, which was significantly inhibited in *Il1r1*-deficient mice.
Conclusion: Our data indicates that neutrophil activation via IL-1R signal is required for inducing lung vascular permeability in ALI model induced by LPS+HVV.

(Sat. Mar 2, 2019 9:50 AM - 10:50 AM 第11会場)

[EngO4-5] Mortality prediction among sepsis patients using a combination of qSOFA, National Early Warning Score, age, gender and serum lactate levels

Chie Tanaka, Takashi Tagami, Shin Sato, Akiko Takehara, Junya Kaneko, Reo Fukuda, Saori Kudo, Masamune Kuno, Kyoko Unemoto （Department of Emergency and Critical Care Medicine, Nippon Medical School Tamanagayama Hospital, Japan）

INTRODUCTION:
The definition of sepsis was revised in 2016 for early recognition of sepsis. The definition captures a wide variation, from patients who require only intravenous antibiotics to critically-ill patients who require intensive care such as intubation and continuous renal replacement therapy which are associated with high mortality.
OBJECTIVE:
To predict critically-ill sepsis patients using the quick Sequential Organ Failure Score (qSOFA), the National Early Warning Score (NEWS) and some variables measured easily on admission.
METHODS:
This was a single-center retrospective cohort study. Of all patients who admitted to our emergency room and intensive care unit, we reviewed 77 patients who were diagnosed as sepsis between March 2014 and December 2017. Age, gender, vital signs (heart rate, body temperature, and respiratory rate), consciousness level, and serum lactate level were measured on admission. Primary outcome measure was in-hospital mortality. We calculated the qSOFA and the NEWS with the variables measured on admission. Then, we created a prediction model using qSOFA or NEWS, age, gender and serum lactate level and performed receiver operating characteristic (ROC) analysis with estimation of the corresponding areas under the curve (AUC).
RESULTS:
Among the eligible 77 patients, the median age was 74 years old (interquartile range [IQR]: 63-82) and 53 (68.8%) was male. Median lactate level was 4.7mmol/l (IQR: 2.2-7.9). About the NEWS on arrival at hospital, low clinical risk patients, middle clinical risk patients and high clinical risk patients were 7 (9.1%), 9(10.4%) and 62 (80.5%), respectively. About the qSOFA on arrival, the score 0, 1, 2 and 3 were 3(3.9%), 21(27.3%), 34(44.2%) and 19(24.7%), respectively. The all-cause mortality rate was 45.5%. Continuous hemodiafiltration was performed for 19 patients (24.7%). ROC curves showed that NEWS had an AUC 0.44 (95% confidential interval [CI], 0.31-0.57); however, the combination of NEWS, age over 65 years, gender and serum lactate level yielded an AUC 0.76 (95% CI, 0.65-0.87). Similarly, qSOFA had an AUC 0.47 (95% confidential interval [CI], 0.34-0.60) and the combination of NEWS, age over 65 years, gender and serum lactate level yielded an AUC 0.78 (95% CI, 0.68-0.88).
CONCLUSION: Among sepsis patients, combined use of NEWS or qSOFA, age, gender and serum lactate levels may be better predictor to detect critically-ill patients who were associated with high mortality.

(Sat. Mar 2, 2019 9:50 AM - 10:50 AM 第11会場)

[EngO4-6] Nebulized adrenaline attenuates lung alveolar and interstitial

edema compared to phenylephrine and salbutamol in ovine burn and smoke inhalation injury model

Satoshi Fukuda[1,2], Koji Ihara[1,3], Yosuke Niimi[1,3], Ernesto Lopez[1], Keibun Liu[1], Clark R. Andersen[1,4], Robert A. Cox[2,5], David N. Herndon[1,2], Donald S. Prough[1,2], Perenlei Enkhbaatar[1,2] （1.Department of Anesthesiology, University of Texas Medical Branch at Galveston, USA, 2.Shriners Hospital for Children, USA, 3.Department of Plastic and Reconstructive Surgery, Tokyo Women's Medical University, Japan, 4.Department of Preventive Medicine &Community Health, Office of Biostatistics, University of Texas Medical Branch, Galveston, USA, 5.Department of Pathology, University of Texas Medical Branch, Galveston, USA）

BACKGROUND: Smoke inhalation-induced acute lung injury (ALI) increases the mortality of burn patients up to 60%. The severity of ALI is associated with lung alveolar/interstitial edema and airway mucosal hyperemia. This study was aimed to test the hypothesis that nebulized adrenaline (non-specific adrenergic receptor agonist) more effectively ameliorates the severity of burn and smoke inhalation-induced ALI than nebulized phenylephrine (α-1), and Salbutamol (β-2).
METHODS: The injury was induced in 46 female sheep by 40% TBSA, 3rd° burn and 48 breaths of cotton smoke inhalation under anesthesia and analgesia. Post-injury, sheep were mechanically ventilated and monitored their cardiopulmonary hemodynamics and lung lymph flow for 48 hours in a conscious state. Lung edema was assessed by measuring pulmonary vascular permeability index (PVPI), lung and trachea wet-to-dry weight ratio (W/D). Sheep were randomly allocated to 4 groups; 1) Adrenaline, 4 mg, n=11; 2) Phenylephrine, 10 mg, n=6; 3) Salbutamol, 6.6 mg, n=12; and 4) Control (saline), n=17. The nebulization began 1 hr post-injury and repeated every 4 hours thereafter.
RESULTS: The Adrenaline significantly improved PaO_2/FiO_2 ratio and oxygenation index, and significantly reduced PVPI compared to control and Salbutamol. Lung and trachea W/D was significantly less in Adrenaline compared to both control and Salbutamol and control, respectively. In histopathological assessment, Adrenaline significantly reduced alveolar edema score compared to control (see table). No adverse effects were observed in all drug groups.
CONCLUSIONS: The adrenaline nebulization attenuated both lung alveolar/interstitial and airway edema, and improved pulmonary mechanics. The nebulization of adrenaline may be considered as an early care of burn patients with smoke inhalation-induced ALI.

English Session

[EngO5] English Session5

Chair:Hideo Inaba(Department of Circulatory Emergency and Resuscitation Science, Kanazawa University Graduate School of Medicine, Japan)

Sat. Mar 2, 2019 10:55 AM - 11:55 AM 第11会場 (国立京都国際会館1F Room C-2)

[EngO5-1] Feeding practices of mechanically ventilated intensive care patients: an evaluation of overfeeding and clinical outcomes

Aiko Tanaka[1,2], Kate Hamilton[3], Glenn Eastwood[2], Daryl Jones[2], Rinaldo Bellomo[2]
（1.Department of Anesthesiology and Intensive Care Medicine, Osaka University, Japan, 2.Department of Intensive Care, Austin Hospital, Australia, 3.Nutrition and Dietetic Department, Austin Hospital, Australia）

[EngO5-2] Efficacy and safety of fibrinogen concentrate in patients with hemorrhagic shock: a single-center experience

Masakazu Nitta, Hiroshi Endoh, Tadayuki Honda, Hiroki Shimizu, Hiroyuki Honda, Yoshifumi Hoshino, Takashi Hazama, Natsuo Kamimura （Niigata University Medical and Dental Hospital, Advanced Disaster Medicine and Emergency Critical Care Center, Japan）

[EngO5-3] Circulating activated protein C levels in septic patients treated with recombinant human soluble thrombomodulin

Takuro Arishima[1], Takashi Ito[1,2], Tomotsugu Yasuda[1], Nozomi Yashima[3], Chinatsu Kamikokuryo[3], Hiroaki Furubeppu[1], Takahiro Futatsuki[1], Hiroyuki Haraura[1], Ikuro Maruyama[2], Yasuyuki Kakihana[1,3] （1.Emergency and Critical Care Center, Kagoshima University Hospital, Japan, 2.Systems Biology in Thromboregulation, Kagoshima University Graduate School of Medical and Dental Sciences, Japan, 3.Emergency and Intensive Care Medicine, Kagoshima University Graduate School of Medical and Dental Sciences, Japan）

[EngO5-4] Association of liver enzyme with morbidity and mortality in traumatic liver injur y patients

Ginthasuphang Wangsapthawi, Kaweesak Chittawatanarat （Division of Surgical Critical Care and Trauma, Department of Surgery, Faculty of Medicine, Chiang Mai University, Thailand）

[EngO5-5] A new predictive equation for resting energy expenditure in mechanically ventilated Thai patients

Phoonsak Limraksasin[1], Napplika Kongpolprom[2] （1.Division of Critical Care Medicine, Department of Anesthesiology, King Chulalongkorn Memorial Hospital, Thailand, 2.Division of Pulmonary and Critical Care Medicine, Department of Medicine, King Chulalongkorn Memorial Hospital, Thailand）

[EngO5-6] Comparison of measured energy expenditure using indirect calorimetry versus predictive equations for liver transplant recipients

Seok-Joon Lee[1], Hak-Jae Lee[2], Yooun-Joong Jung[2], Minkyu Han[3], Suk-Kyung Hong[2] （1.College of Medicine, University of Ulsan, Korea, 2.Division of Acute Care Surgery, Department of Surgery, University of Ulsan College of Medicine, Asan Medical Center, Korea, 3.Department of Clinical Epidemiology and Biostatistics, University of Ulsan, Korea）

(Sat. Mar 2, 2019 10:55 AM - 11:55 AM 第11会場)

[EngO5-1] Feeding practices of mechanically ventilated intensive care patients: an evaluation of overfeeding and clinical outcomes

Aiko Tanaka[1,2], Kate Hamilton[3], Glenn Eastwood[2], Daryl Jones[2], Rinaldo Bellomo[2] （1.Department of Anesthesiology and Intensive Care Medicine, Osaka University, Japan, 2.Department of Intensive Care, Austin Hospital, Australia, 3.Nutrition and Dietetic Department, Austin Hospital, Australia）

Critically ill patients are at high risk of malnutrition. Overfeeding critically ill patients has significant clinical consequences. This study aimed to assess for the frequency and consequence of potential overfeeding in ICU patients mechanically ventilated (MV) for at least 10 days.
Methods: Retrospective analysis of 105 MV patients was performed, including calorie delivery, estimated caloric requirements, and association between caloric delivery and several pre-defined clinical outcomes. To increase likelihood of detecting overfeeding, we conducted sensitivity analysis for a subgroup patient who received on average <25kcal/kg/day and 25 kcal/kg/day between day 7-10 and performed repeated measure ANOVA.
Results: 55 patients were received an average of <25kcal/kg/day, and 50 received 25 kcal/kg/day. The latter group was younger, less weighed and with fewer patients with ischemic heart failure. Higher caloric delivery was statistically associated with increased minute ventilation ($p<0.001$). Higher caloric delivery was also associated with more frequent diarrhea ($p=0.01$) and higher alkaline phosphatase level ($p=0.02$). However, these differences did not translate into increased duration of mechanical ventilation, length of stay, or increased mortality.
Conclusions: Higher caloric delivery was associated with increased minute ventilation, diarrhea and liver function. The effect of such physiological end-points on patient centered outcomes require further investigation.

(Sat. Mar 2, 2019 10:55 AM - 11:55 AM 第11会場)

[EngO5-2] Efficacy and safety of fibrinogen concentrate in patients with hemorrhagic shock: a single-center experience

Masakazu Nitta, Hiroshi Endoh, Tadayuki Honda, Hiroki Shimizu, Hiroyuki Honda, Yoshifumi Hoshino, Takashi Hazama, Natsuo Kamimura （Niigata University Medical and Dental Hospital, Advanced Disaster Medicine and Emergency Critical Care Center, Japan）

Introduction:
Several guidelines have suggested that administration of fibrinogen concentrate (FC) improves outcomes of massive hemorrhage. But in Japan, administration of FC for acquired fibrinogen deficiencies due to massive hemorrhage is not covered by health insurance. Therefore, since approval of the off-label use of FC by our institutional review board on March 2015, we have administered FC in the patients with hemorrhagic shock. The objective of this study was to evaluate the efficacy and safety of FC for patients with hemorrhagic shock.

Methods:
A retrospective chart review was conducted in patients admitted with hemorrhagic shock who received FC from March 2015 to June 2018.

Result:

The study population comprised 23 patients who were consisted primarily of females (14 [60.9%]) and median age was 71.0 (IQR 49.5 – 77.5, MIN 8, MAX 88) years. Etiologies were multiple trauma (17), postpartum bleeding (4), postoperative bleeding (1), and varices rupture (1). The mean dose of fibrinogen concentrate administered was 3.0g (IQR 3.0 – 3.0, MIN 1, MAX 3). The median initial fibrinogen plasma level was 101.0 mg/dl (IQR 75.5 – 134.5, MIN <30, MAX 482.0), which significantly rose to 210.0 mg/dl (IQR 181.0 – 251.5, MIN 66, MAX407) (P <0.0001) after administration of FC. Twenty-two patients (95.7%) eventually achieved reversal of coagulopathy and were admitted to our ICU or general ward. The number of patients who survived after 24h was 22 (95.7%), and 20 (87.0%) after 7 days. No adverse events directly associated with FC were observed. There was no symptomatic venous thromboembolism (VTE) in this population. But asymptomatic VTE were detected in 5 patients (21.7%).

Conclusion:
Administration of FC significantly raised fibrinogen levels in patients with hemorrhagic shock. And clinical hemostasis was obtained in almost all patients without serious thrombotic complications.

(Sat. Mar 2, 2019 10:55 AM - 11:55 AM 第11会場)

[EngO5-3] Circulating activated protein C levels in septic patients treated with recombinant human soluble thrombomodulin

Takuro Arishima[1], Takashi Ito[1,2], Tomotsugu Yasuda[1], Nozomi Yashima[3], Chinatsu Kamikokuryo[3], Hiroaki Furubeppu[1], Takahiro Futatsuki[1], Hiroyuki Haraura[1], Ikuro Maruyama[2], Yasuyuki Kakihana[1,3] （1.Emergency and Critical Care Center, Kagoshima University Hospital, Japan, 2.Systems Biology in Thromboregulation, Kagoshima University Graduate School of Medical and Dental Sciences, Japan, 3.Emergency and Intensive Care Medicine, Kagoshima University Graduate School of Medical and Dental Sciences, Japan）

Background: Recombinant thrombomodulin (rTM) mainly exerts its anticoagulant effects through an activated protein C (APC)-dependent mechanism, but the circulating APC levels after rTM treatment have not been clarified.
Objectives: This prospective observational study investigated plasma APC levels after rTM treatment.
Methods: Plasma levels of soluble thrombomodulin, thrombin-antithrombin complex (TAT), protein C, and APC were measured in eight septic patients treated with rTM.
Results: rTM significantly increased thrombin-mediated APC generation in vitro. In septic patients, soluble thrombomodulin levels were significantly increased during a 30–60-min period of rTM treatment and TAT levels were decreased. However, APC activity was not increased during the treatment period.
Conclusions: Plasma APC activity is not increased in septic patients treated with rTM. It is possible that APC acts locally and does not circulate systemically.

(Sat. Mar 2, 2019 10:55 AM - 11:55 AM 第11会場)

[EngO5-4] Association of liver enzyme with morbidity and mortality in traumatic liver injur y patients

Ginthasuphang Wangsapthawi, Kaweesak Chittawatanarat （Division of Surgical Critical Care and Trauma, Department of Surgery, Faculty of Medicine, Chiang Mai University, Thailand）

Background: Traumatic liver injury patients can be managed by nonoperative treatment. Unfavorable outcome could occurred after injury, even without obvious symptoms but only abnormal LFT or imaging. Previous studies lacked of change of serum markers at different times after injury and association of the serum marker levels to outcome of patients.
Objective: To compare serum marker in LFT at difference times after traumatic liver injury and identify the serum marker associated with unfavorable outcome
Patients and Methods: Retrospective cohort study in 206 traumatic liver injury patients who were older than 18 years old. The patients' serum marker datas at difference date after injury were analyzed in favorable outcome and unfavorable outcome groups using statistical significant at $p < 0.05$.
Results: In 206 traumatic liver injuries, the unfavorable outcome group included 119 patients, majority of these patients need interventions. AST and ALT were observed rising along with grading of injury with exception to grade VI injury at first admission. AST was decreasing slower in unfavorable outcome group at day 1-5 and 6-10 periods. TB and DB level were significantly rising after 5 days period of injury and higher than normal in unfavorable group. They had higher OR in especially in day 11-15 period after injury (2.7 and 6.9 with 95% CI = 1.020-7.366 and 1.080-44.037, respectively.)
Conclusion: Liver function test could be used as guided to indicate the patients likely to have complications from traumatic liver injury. Elevated level of TB and DB were significantly associated with unfavorable outcome especially after day 6-15 of injury, while repeating LFT in first five days after injury did not help in determine the patient likely to have unfavorable outcomes. However, normal or slightly abnormal liver function test cannot exclude that the patients were without complication.

(Sat. Mar 2, 2019 10:55 AM - 11:55 AM 第11会場)

[EngO5-5] A new predictive equation for resting energy expenditure in mechanically ventilated Thai patients

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Background: The gold standard used to determine calorie-need in critically ill patients has been conducted through an indirect calorimeter. However, in Thailand, it is rarely affordable. Therefore current predictive equations have attracted a great deal of attention as the alternatives in routine clinical practice. The precision of previously validated equations for estimating energy requirements in critically ill patients ranged from 37-65% of measured resting energy expenditure (REE). However, up to our knowledge, the validated equation for evaluating REE in mechanically ventilated Thai patients has not been yet clarified.
Purpose: To formulate the specific predictive equations for predicting REE in mechanically ventilated Thai patients and evaluate the accuracy of the 10 current predictive equations for predicting REE in mechanically ventilated Thai patients.
Methods: This was a prospective observational, single-center study conducted in adult medical and surgical ICU. The study population comprised mechanically ventilated Thai patients (N = 63) were measured REE by indirect calorimeter and compared to the REE calculated from the 10 predictive equations. The specific data (10 variables) were prospectively collected to formulate the new equation.
Results: 63 patients (67.03±17.25 Y, SAP II 31.86±10.59) from both medical ICU (47.6%) and surgical ICU (52.4%) were included in this study. We found that only 6 variables from 10 variables that were used in the ten current predictive equations have the significant correlations with the REE that measured from indirect

calorimeter (p<0.001). Among the ten current predictive equations - the Penn State 2010 (r = 0.757, p<0.001), Swinamer 1990 (r = 0.753, p <0.001) and Ireton Jones 2002 (r = 0.696, p <0.001) respectively have the good correlations with the gold standard REE measured from the indirect colorimeter. We proposed the new predictive equation [REE = 1528.85+(3.07x heart rate) – (27.88 x Respiratory rate)+ (64.92x Maximum Body Temperature) + (75.94 x minute ventilation) + 136.52 X Gender (Male=1 or Female = 0) – (5.95 x Age) – (27.92x Height) – (7.94 x Actual body weight) + (1534.56 x Body surface area) – (290.12 x Type of patient : Medical = 0 , Surgical =1)] that have the best correlation (r=0.845 , p<0.001) with the REE that measured from the indirect calorimeter.

Conclusions: In this study we can formulate a specific equation for estimating resting energy expenditures in mechanically-ventilated Thai patients that has the best accuracy and correlation with the gold standard REE measured from the indirect calorimeter.

(Sat. Mar 2, 2019 10:55 AM - 11:55 AM 第11会場)

[EngO5-6] Comparison of measured energy expenditure using indirect calorimetry versus predictive equations for liver transplant recipients

Seok-Joon Lee[1], Hak-Jae Lee[2], Yooun-Joong Jung[2], Minkyu Han[3], Suk-Kyung Hong[2] （1.College of Medicine, University of Ulsan, Korea, 2.Division of Acute Care Surgery, Department of Surgery, University of Ulsan College of Medicine, Asan Medical Center, Korea, 3.Department of Clinical Epidemiology and Biostatistics, University of Ulsan, Korea）

Background &aims: We compared three commonly used predictive equations with indirect calorimetry for assessing the appropriate energy expenditure requirement of liver transplant (LT) recipients in South Korea.
Methods: 50 mechanically ventilated patients who had received liver transplants and were expected to stay in the ICU more than 2 days were studied. Resting energy expenditure (REE) was measured 48 hours after ICU admission using open-circuit indirect calorimetry. Theoretical REE was estimated using three predictive equations: Harris-Benedict methods, Ireton-Jones ventilated, and Penn state 1988. The REEs derived from each predictive equation were compared with the measured REE using an intraclass correlation coefficient (ICC) and a Bland-Altman plot.
Result: Penn-state 1988 equation showed 65.0% agreement (ICC 0.65) with indirect calorimetry measurement, and Harris-Benedict method 56.0%, Ireton-Jones 39.0%, respectively. The mean difference between measured and predicted REE for each method was as follows: Harris-Benedict method, 148.50± 247.67 kcal; Ireton-Jones ventilated, -105.30± 284.72 kcal; and Penn state 1988, -52.49± 249.86 kcal. In the Bland-Altman plot, all three predictive equations seemed to have fixed bias, but the Penn state 1988 method had the least. Harris Benedict method tended to underestimate REE, while Ireton-Jones ventilated and Penn state 1988 tended to overestimate REE.
Conclusion: Although predicted REE calculated using the Penn state 1988 method agreed (ICC 0.650) with the measured REE, all three predictive equations had a fixed bias and appeared to be inaccurate for predicting REE for liver transplantation recipients. Therefore, precise measurements using indirect calorimetry may be helpful when treating critically ill patients to avoid underestimating or overestimating their metabolic needs.
Registered at: www.clinicalTrials.gov (NCT03622268)
Keyword: Indirect calorimetry, Predictive equations, Liver transplant, Energy expenditure assessment, ICU

English Session

[EngO6] English Session6

Chair:Takeshi Suzuki(Department of Anesthesiology, Keio University School of Medicine, Japan)
Sat. Mar 2, 2019 2:00 PM - 3:00 PM 第11会場 (国立京都国際会館1F Room C-2)

[EngO6-1] Evaluation of clinical pharmacist intervention in surgical intensive care unit

Jiyoung Kim, Jonghee Ko, Soohyun Kim, Eunsun Son, Jeongmin Kim, Sungwon Na
（Department of Pharmacy, Anesthesiology and Pain Medicine, Yonsei University College of Medicine, Korea）

[EngO6-2] A unique strategy for large bowel perforation with ventriculo-peritoneal shunt: Conversion to ventriculo-atrial shunt

Shota Akabane, Hirokazu Iijima, Shoichi Nakajima, Yukari Kobayashi, Kazunao Watanabe
（Tokyo Nishi Tokushukai Hosipital, Japan）

[EngO6-3] Influenza-associated septic shock accompanied by septic cardiomyopathy that developed in summer and mimicked fulminant myocarditis

Kei Suzuki, Ryo Esumi, Kaoru Ikejiri, Asami Ito, Yoshiaki Iwashita, Ken Ishikura, Masaki Fujioka, Hiroshi Imai （Mie University Hospital, the Emergency and Critical Care Center, Japan）

[EngO6-4] Association between appropriate empiric antimicrobial therapy and mortality from bloodstream infections in the intensive care unit

Satoshi Yamaga, Nobuaki Shime, Shinichiro Ohshimo （Department of Emergency and Critical Care Medicine, Graduate School of Biomedical and Health Sciences, Hiroshima University, Japan）

[EngO6-5] Effect of healthcare-associated infections on the length of pediatric intensive care unit stay

Takeshi Hatachi, Jumpei Okumura, Kota Yoshida, Mami Yamada, Takaaki Akamatsu, Masashi Taniguchi, Jun Takeshita, Kanako Isaka, Kazue Moon, Muneyuki Takeuchi （Osaka Women's and Children's Hospital, Japan）

[EngO6-6] Open label prospective randomised control study of high cut point level of procalcitonin guided antibiotic therapeutic protocol in surgical critically ill patients

Kaweesak Chittawatanarat, Narain Chotirosniramit, Kamtone Chandacham, Tidarat Jirapongcharoenlap, Rungnapa Peerakam, Mudjalin Areerug （Division of Surgical Critical Care and Trauma, Department of Surgery, Faculty of Medicine, Chiang Mai University, Thailand）

(Sat. Mar 2, 2019 2:00 PM - 3:00 PM 第11会場)

[EngO6-1] Evaluation of clinical pharmacist intervention in surgical intensive care unit

Jiyoung Kim, Jonghee Ko, Soohyun Kim, Eunsun Son, Jeongmin Kim, Sungwon Na （Department of Pharmacy, Anesthesiology and Pain Medicine, Yonsei University College of Medicine, Korea）

The ICU is committed to providing clinical treatment by continuously monitoring patients with severe diseases. It is committed to improving the clinical condition of the ICU by utilizing medications, special facilities, medical equipment, and specialist resources. As a member of multidisciplinary team activities for patient safety and medical quality improvement, we analyze the status of prescribing arbitration activities of clinical pharmacists and seek directions for future development.
From January 2017 to December 2017, the multidisciplinary team rounding was regularly done 3 times per week, we analyzed pharmaceutical questionnaires from physicians and interventions made by clinical pharmacists for patients over 18 years old in surgical intensive care unit (SICU).
During our studying period, the average patients in SICU was 13 patients in a day and readmitted patients in SICU was 3.6 patients in a day.
609 of medication interventions were made by clinical pharmacist and total of 347 patients were benefited. The clinical pharmacists made direct medication-related interventions for 289 patients and of these 273 (94.5%) interventions were accepted by the multidisciplinary team. Through this multidisciplinary team activity, 443 medication interventions were made. 194 cases of proper medications were recommended with the proper indications, 82 cases of proper medication dosages and intervals were recommended, and 63 cases of unnecessary prescriptions were deleted to reduce the burden of poly-pharmacy. The clinical interventions were done in following categories: 130 antibiotic agents, 79 gastrointestinal agents, and 48 central nervous system agents.
Our study demonstrated the acceptance rate of prescription interventions made by clinical pharmacists was very high (94.5%). Therefore we can expect the promising contribution of improving quality and safe of SICU by clinical pharmacists’ educational activities and protocol revision.

(Sat. Mar 2, 2019 2:00 PM - 3:00 PM 第11会場)

[EngO6-2] A unique strategy for large bowel perforation with ventriculo-peritoneal shunt: Conversion to ventriculo-atrial shunt

Shota Akabane, Hirokazu Iijima, Shoichi Nakajima, Yukari Kobayashi, Kazunao Watanabe （Tokyo Nishi Tokushukai Hosipital, Japan）

Since large bowel perforation can lead to critical sepsis, urgent intervention including surgery is indispensable in order to control to systemic infection. Here, we present a strategy for large bowel perforation with ventriculo-peritoneal shunt.
A 74-year-old Japanese woman presented with lower abdominal pain, fever, and disordered consciousness. She had had a history of cerebral aneurysm clipping and ventriculo-peritoneal shunt (V-P shunt) placement due to aneurysm rupture followed by subarachnoid hemorrhage 3 years before. She was diagnosed as large bowel perforation and bacterial meningitis transmitted by V-P shunt according to her clinical findings. We performed sigmoidectomy and externalization of the shunt and consequently replaced it with ventriculo-atrial shunt (V-A shunt) (Figure 1). Her postoperative course was quite well and she was discharged without major complications.

We discuss about the management of bowel perforation related to VP shunt including the utility of V-A shunt as an alternative based on our experience and preceding literatures.

(Sat. Mar 2, 2019 2:00 PM - 3:00 PM 第11会場)

[EngO6-3] Influenza-associated septic shock accompanied by septic cardiomyopathy that developed in summer and mimicked fulminant myocarditis

Kei Suzuki, Ryo Esumi, Kaoru Ikejiri, Asami Ito, Yoshiaki Iwashita, Ken Ishikura, Masaki Fujioka, Hiroshi Imai
（Mie University Hospital, the Emergency and Critical Care Center, Japan）

Background: Fulminant myocarditis (FM) and septic cardiomyopathy (SC) are two different disease entities and distinction is important.
Case Presentation: A 34-year-old man was presented to our hospital with shock in September. His blood temperature, pulse rate, blood pressure, and respiratory rate were 39.7˚ C, 157 bpm, 49/30 mmHg, and 40 breaths/min. Because ECG showed tachycardia with extended ST elevation and a rapid test for influenza A virus was positive, FM was suspected. He was intubated and carried to the ICU, where high-dose vasopressor therapy (noradrenaline up to 0.4 γ and vasopressin up to 2 units/hour) was initiated and CRRT was begun. Antimicrobial therapy, including a neuraminidase inhibitor and empiric broad-spectrum antibiotics was administered. Echocardiography showed severe global LV systolic dysfunction (EF, 20%) and LV dilatation (LVDd, 66 mm) without myocardial edema. A right heart catheter examination showed cardiac output of 12.0 L/min (CI 6.16 L/min/m^2) which was inconsistent with FM. Additionally, myocardial biopsy findings did not indicate FM. Thus, SC was considered and standard therapy for septic shock was initiated. He was stabilized in first 72 hours without mechanical circulatory support. He was extubated and CRRT were discontinued on 12^{th} hospitalized day. His low LV function was restored and returned to almost normal in following two weeks.
Conclusion: Influenza A infection may cause of septic shock accompanied by SC. It is confusing in clinical appearance of FM, but showed critically different features of FM and it may occur even in not in the epidemic period.

(Sat. Mar 2, 2019 2:00 PM - 3:00 PM 第11会場)

[EngO6-4] Association between appropriate empiric antimicrobial therapy and mortality from bloodstream infections in the intensive care unit

Satoshi Yamaga, Nobuaki Shime, Shinichiro Ohshimo （Department of Emergency and Critical Care Medicine, Graduate School of Biomedical and Health Sciences, Hiroshima University, Japan）

Background: Empirical antimicrobial treatment for patients presenting with bloodstream infections is considered to affect patients' outcome.
Method: We conducted a single-center, retrospective study of critically-ill patients hospitalized in the intensive care unit, to examine whether the appropriate antimicrobial therapy was associated with mortality from bloodstream infections. Survival rate up to 60 days after the sampling of the blood cultures was

analyzed.
Results: We enrolled a total of 62 patients with bloodstream infection, of whom 46 received appropriate and 16 received inappropriate, empirical, antimicrobial therapy. The 60-day mortality of the appropriately treated patients was significantly lower than that of the inappropriately treated patients (35% vs 88%; p=0.0003), with an adjusted odds ratio for death of 0.043 (95% confidence interval 0.0047 to 0.23; p=0.0011). Survival rate was significantly better in the appropriately treated patients compared with the inappropriately treated patients (p=0.0004), with an adjusted hazard ratio of 0.34 (95% confidence interval 0.16 to 0.70; p=0.0043).
Conclusion: Appropriate antimicrobial therapy might have been associated with lower 60-day mortality compared with inappropriate therapy in critically-ill patients with bloodstream infection.

(Sat. Mar 2, 2019 2:00 PM - 3:00 PM 第11会場)

[EngO6-5] Effect of healthcare-associated infections on the length of pediatric intensive care unit stay

Takeshi Hatachi, Jumpei Okumura, Kota Yoshida, Mami Yamada, Takaaki Akamatsu, Masashi Taniguchi, Jun Takeshita, Kanako Isaka, Kazue Moon, Muneyuki Takeuchi （Osaka Women's and Children's Hospital, Japan）

Introduction:
Healthcare-associated infections (HAIs) result in prolonged pediatric intensive care unit (PICU) stay and worse outcomes; however, the effect of HAIs on the length of PICU stay is unknown.
Objective:
We aimed to assess the effect of HAIs on the length of PICU stay.
Methods:
We conducted this retrospective observational study at a single tertiary children’ s hospital and included all consecutive pediatric patients admitted to the PICU from 2013 to 2017. The effects of HAIs, including bloodstream infections (BSIs), pneumonia, and urinary tract infections (UTIs), on the length of PICU stay were assessed using multiple regression analysis.
Results:
In total, 2,886 patients were included, and the median age was 16 (interquartile range, 4–59) months. There were 67 BSI cases, 43 pneumonia cases, and 57 UTI cases. After adjusting for age in months, sex, pediatric index of mortality 2, postoperative admission, elective admission, use of extracorporeal membrane oxygenation, vasoactive inotrope, mechanical ventilation, renal replacement therapy, use of steroids, use of antibiotics, diagnostic category, mortality in PICU, we observed that BSI, pneumonia, and UTI were associated with 18.5 days (95% confidence interval [CI], 16.3–20.6), 27.6 days (24.8–30.3), and 13.2 days (10.8–15.5) of prolonged PICU stay.
Conclusion:
HAIs considerably affected the length of PICU stay; therefore, preventing HAIs is important for patients’ prognosis and medical economics.

(Sat. Mar 2, 2019 2:00 PM - 3:00 PM 第11会場)

[EngO6-6] Open label prospective randomised control study of high cut point level of procalcitonin guided antibiotic therapeutic protocol in surgical critically ill patients

Kaweesak Chittawatanarat, Narain Chotirosniramit, Kamtone Chandacham, Tidarat Jirapongcharoenlap, Rungnapa Peerakam, Mudjalin Areerug （Division of Surgical Critical Care and Trauma, Department of Surgery, Faculty of Medicine, Chiang Mai University, Thailand）

Background: Post operative fever is a common problem. In some situations, to distinguish infection from non - infection is difficult. Procalcitonin is claimed to be beneficial for identifying infection. However, the cut point value is still not concluded especially on post-operative critically ill patient.
Objectives: To show the benefit of efficacy of procalcitonin in post-operative fever in surgically critical ill patients. The cut point of less than 1 ng/ml or below 70% of initial level is used for guiding physician to discontinue antibiotic. The mortality rate and reinfection rate were analyzed.
Material and methods: The open label randomized control study was conducted. One hundred hospitalized patients in surgical intensive care unit, sub surgical intensive care unit and trauma intensive care unit were eligible in this study. The patients were divided into two groups, usual care group (UC) and procalcitonin-guided treatment group (PC).
Results: One hundred patients were included in the study. Baseline characteristics were not statistical significant different between group. Mean antibiotic duration and antibiotic free day were statistical significant different between group [PC vs. UC :8.5 days (IQR 5-17) vs. 14 days(IQR 8-28), (p=0.015); and 18 days(IQR 0-23) vs. 7.5 days(IQR 0-17), (p=0.023) respectively]. 90 day mortality and recurrent infection were not statistical significant different [90 days mortality (12/50) 24% vs. (11/50) 22%, Hazard ratio,HR,(95% confidence interval) 0.91 (0.41-2.03), p=0.818; hospital recurrent infection (14/50) 28% vs. (21/50) 42%, Hazard ratio,HR,(95% confidence interval) 0.62 (0.31-1.21), p=0.161.
Conclusion: The high cut point of procalcitonin level of 1 ng/ml or below 70% of initial level decrease antibiotic usage duration in post-operative surgical critically ill patients without differences on 90 days mortality and hospital re-infection.

English Session

[EngO7] English Session7

Chair:Kenji Wakabayashi(Department of Intensive Care Medicine, Tokyo Medical and Dental University, Japan)

Sat. Mar 2, 2019 3:05 PM - 4:05 PM 第11会場 (国立京都国際会館1F Room C-2)

[EngO7-1] Characteristics of wound infections among patients injured during torrential rain and landslides, in the 2018 disaster in west Japan

Kazuya Kikutani[1], Michihito Kyo[1], Junji Itai[1], Shinji Kusunoki[2], Takao Yamanoue[2], Yasumasa Iwasaki[3], Itsuo Nakagawa[4], Hiroshi Naitou[5], Masami Ishikawa[6], Nobuaki Shime[1] （1.Department of Emergency and Critical Care Medicine, Graduate School of Biomedical and Health Sciences, Hiroshima University, Japan, 2.Emergency Department, Hiroshima Prefectural Hospital, Japan, 3.Emergency Department, Kure Medical Center and Chugoku Cancer Center, Japan, 4.Emergency Department, Chugoku Rosai Hospital, Japan, 5.Department of Emergency Medicine, Hiroshima Citizens Hospital, Japan, 6.Emergency Department, Kure Kyosai Hospital, Japan）

[EngO7-2] Potential benefits of acute-phase cardiac rehabilitation in the intensive care unit for patients with cardiovascular disease -A retrospective observational study-

Nobuaki Hamazaki[1], Ryota Matsuzawa[1], Kohei Nozaki[1], Takafumi Ichikawa[1], Kentaro Kamiya[2], Kazumasa Miida[1], Tomotaka Koike[3], Emi Maekawa[4], Masayasu Arai[5], Takashi Masuda[2] （1.Department of Rehabilitation, Kitasato University Hospital, Japan, 2.Department of Rehabilitation, Kitasato University School of Allied Health Sciences, Japan, 3.Intensive Care Center, Kitasato University Hospital, Japan, 4.Department of Cardiovascular Medicine, Kitasato University School of Medicine, Japan, 5.Department of Anesthesiology, Kitasato University School of Medicine, Japan）

[EngO7-3] Influencing factors on the changes of ICU family members’ satisfaction

Soyoung Yang[1], Hye Ri Choi[3], In-Ho Yang[1], Mira Song[1], Jun Ki Min[1], Minji Lee[1], Yee Hyung Kim[2], Sung Wook Kang[2] （1.Department of Internal Medicine, Kyung Hee University Hospital at Gang Dong, Korea, 2.Department of Pulmonary and Critical Care Medicine, Kyung Hee University Hospital at Gang Dong, Korea, 3.School of Health in Social Science, University of Edinburgh, UK）

[EngO7-4] Intergrated clinical reasoning assessment in simulation crisis management class

Kanya Kumwilaisak[1], Toonchai Indrambarya[1], Danai Wangsaturaka[2], Paweenuch Bootjeamjai[1] （1.Division of Critical Care, Department of Anesthesiology, King Chulalongkorn Memorial Hospital, Thailand, 2.Department of Pharmacology Faculty of Medicine, Chulalongkorn University, Thailand）

[EngO7-5] The epidemiology and characteristics of acute kidney injur y in the intensive care unit in resource limited settings: *A prospective multicenter study*

Nattachai Srisawat[1,2], Win Kulvichit[1,2], Noppathorn Mahamitra[1], Cameron Hurst[3], Kearkiat Praditpornsilpa[1], Nuttha Lumlertgul[1], Kriang Tungsanga[1], Somchai Eiam-Ong[1], Visith Sitprija[1,4], John A Kellum[2], Konlawij Trongtrakul[5], SEA-AKI study group （1.Division of Nephrology, Department of Medicine, Faculty of Medicine, Chulalongkorn University, and King

Chulalongkorn Memorial Hospital, Thailand, 2.Center for Critical Care Nephrology; The CRISMA Center, Department of Critical Care Medicine, University of Pittsburgh School of Medicine, USA, 3.Statistics Unit, QIMR Berghofer Medical Research Institute, Australia, 4.Queen Saovabha Memorial Institute, Thai Red Cross, Thailand, 5.Vajira Hospital, Navamindradhiraj University, Thailand）

[EngO7-6] Predictive factors of abnormal finding detected by computerized tomography scan of brain among medical critically ill patients

Surat Tongyoo[1], Meitee Vichutavate[1], Tipa Chakorn[2], Chairat Permpikul[1] （1.Department of Internal Medicine, Faculty of Medicine, Siriraj hospital, Mahidol University, Thailand, 2.Department of Emergency Medicine, Faculty of Medicine, Siriraj hospital, Mahidol University, Thailand）

(Sat. Mar 2, 2019 3:05 PM - 4:05 PM 第11会場)

[EngO7-1] Characteristics of wound infections among patients injured during torrential rain and landslides, in the 2018 disaster in west Japan

Kazuya Kikutani[1], Michihito Kyo[1], Junji Itai[1], Shinji Kusunoki[2], Takao Yamanoue[2], Yasumasa Iwasaki[3], Itsuo Nakagawa[4], Hiroshi Naitou[5], Masami Ishikawa[6], Nobuaki Shime[1] （1.Department of Emergency and Critical Care Medicine, Graduate School of Biomedical and Health Sciences, Hiroshima University, Japan, 2.Emergency Department, Hiroshima Prefectural Hospital, Japan, 3.Emergency Department, Kure Medical Center and Chugoku Cancer Center, Japan, 4.Emergency Department, Chugoku Rosai Hospital, Japan, 5.Department of Emergency Medicine, Hiroshima Citizens Hospital, Japan, 6.Emergency Department, Kure Kyosai Hospital, Japan）

Background
A major disaster involving landslides and flooding caused by heavy rainfall occurred in west Japan on July 6 and 7, 2018, killing over 100 people in the greater Hiroshima area. Many patients suffered skin and soft tissue damage as a direct result of the disaster or during the process of evacuation. Delays in initiating treatment, severe wound contamination due to mud, and longer durations of compression of the wound site may have increased the risks of wound infection. Furthermore, atypical bacteria present in mud may represent causative pathogens. However, studies on wound infections in such disaster settings have been scarce. This study aimed to investigate the clinical characteristics and treatment of wound infections during this disaster.

Methods
We retrospectively investigated the medical records of all injured patients admitted to six designated disaster medical centers in the greater Hiroshima area between July 6 and 8, 2018. Information on the patients' characteristics, wound status, primary wound care, use of prophylactic and therapeutic antibiotics, presence of wound infection, and duration of hospitalization were collected.

Results
Thirty-three patients (69 wounds) were enrolled in the study, including 11 patients (33%) with wound infections (12 infected wounds). The average age was 58 years, and 20 (60%) patients were male. There were no significant differences in age, sex, past medical history, and revised trauma score between the infected and uninfected groups. Infected patients tended to have had longer periods from injury to hospital arrival (13.5 vs 9.0 h, $p=0.085$), receive more surgery (91% vs 9.5%, $p<0.001$), have longer hospitalization (45 vs 15 days, $p<0.001$), and have a longer period of antibiotic treatment (18 vs 2 days, $p<0.001$). Infected wounds were deeper and more likely to be contaminated by mud (58% vs.9%, $p<0.001$, and 92% vs. 48% $p<0.001$, respectively). A total of 29 species of bacteria were isolated from infected wounds, and 82% of wounds were polymicrobial. Bacillus cereus (n=6), Enterobacter species (n=4), Enterococcus species (n=8), Aeromonas species (n=3), Serratia marcescens (n=5), and Acinetobacter baumannii (n=2) were the predominant pathogens.

Conclusions
In this observational study, 33% of patients hospitalized due to injuries sustained during landslides and flooding had wound infections. Patients with infected wounds had longer durations of hospitalization and antibiotic treatment. Infected wounds were more likely to have been contaminated by mud.

(Sat. Mar 2, 2019 3:05 PM - 4:05 PM 第11会場)

[EngO7-2] Potential benefits of acute-phase cardiac rehabilitation in the intensive care unit for patients with cardiovascular disease -A retrospective observational study-

Nobuaki Hamazaki[1], Ryota Matsuzawa[1], Kohei Nozaki[1], Takafumi Ichikawa[1], Kentaro Kamiya[2], Kazumasa Miida[1], Tomotaka Koike[3], Emi Maekawa[4], Masayasu Arai[5], Takashi Masuda[2] （1.Department of Rehabilitation, Kitasato University Hospital, Japan, 2.Department of Rehabilitation, Kitasato University School of Allied Health Sciences, Japan, 3.Intensive Care Center, Kitasato University Hospital, Japan, 4.Department of Cardiovascular Medicine, Kitasato University School of Medicine, Japan, 5.Department of Anesthesiology, Kitasato University School of Medicine, Japan）

Background: Early rehabilitation in intensive care unit (ICU), including the early mobility therapy, has been documented to improve the clinical outcomes in critically ill patients. However, the effectiveness of acute-phase cardiac rehabilitation (CR) during ICU treatment have not been thoroughly evaluated in patients with cardiovascular disease (CVD). The aim of this study was to investigate the potential benefits of acute-phase CR in the ICU on clinical outcomes in CVD patients.
Methods: We studied 2034 CVD patients who admitted ICU of a university hospital and received CR from 2009 to 2017. Disease etiology, comorbid conditions, ICU treatment, length of ICU stay and hospital stay, duration from admission to walking independence, and six-minute walk distance at hospital discharge were retrospectively obtained from electronic database. Patients were classified into 2 groups based on the presence or absence of cardiac rehabilitation during ICU treatment (ICU-CR group: n=1057, Control group: n=977). We compared the clinical outcomes between the 2 groups using Kaplan-Meier method and analysis of covariance with adjustment for cofounding factors.
Results: As compared with the Control group, the ICU-CR group showed significantly shorter length of ICU stay (estimated mean difference [EMD]: -1.568, P = 0.001) and length of hospital stay (EMD: -3.608, P <0.001) even after adjustment for confounding factors. The duration from admission to walking independence was significantly earlier in the ICU-CR group than in that of the Control (Figure). There were no significant differences in 6-minute walk distance between the 2 groups.
Conclusion: The acute-phase CR in the ICU was considered beneficial to improve clinical outcomes in CVD patients.

(Sat. Mar 2, 2019 3:05 PM - 4:05 PM 第11会場)

[EngO7-3] Influencing factors on the changes of ICU family members' satisfaction

Soyoung Yang[1], Hye Ri Choi[3], In-Ho Yang[1], Mira Song[1], Jun Ki Min[1], Minji Lee[1], Yee Hyung Kim[2], Sung Wook Kang[2] （1.Department of Internal Medicine, Kyung Hee University Hospital at Gang Dong, Korea, 2.Department of Pulmonary and Critical Care Medicine, Kyung Hee University Hospital at Gang Dong, Korea, 3.School of Health in Social Science, University of Edinburgh, UK）

Purpose: This study aims to investigate family members' satisfaction of ICU patients and identify factors associated with changes in satisfaction.
Method: The study is a conducted prospective cohort study in the MICU and CCU at Kyung Hee University Hospital at Gangdong. ICU Family members' satisfaction was evaluated by a validated Korean-language version of the FS-ICU 24 which contains FS-ICUtotal for overall satisfaction, FS-ICUcare for care and FS-ICUdm for information/decision-making. The same questionnaire survey was asked twice to the family members; within 48 hours from ICU admission and either 120 hours from the ICU admission or ICU discharge. Satisfaction scores were analyzed using univariable and multivariable multilevel linear regression models.
Results: 45 family members participated in the primary survey and 30 of them also participated in the secondary survey.
The FS-ICUtotal of primary survey was 64.6±14.6(mean ± SD), FS-ICUcare was 71.4(57.1-87.5)(median), and FS-ICUdm was 57.8±10.8. The FS-ICUtotal of secondary survey was 63.9±16.8, FS-ICUcare was 72.3(48.7-85.4) and FS-ICUdm was 57.9±12.0.
The changes of satisfaction weren't statistically correlated with the lengths of ICU stay, the frequency of family members' visits, and both improvement and deterioration of patients' severity of illness. However, the shorter ICU stays and the more frequent family members' visits, the higher score in FS-ICUtotal and FS-ICUcare.
Conclusion: ICU in a secondary hospital in South Korea seems to have clear needs for improvement as the family members' satisfaction. Even though the results show that the lengths of ICU stay and frequency of ICU visits contributes to satisfaction, more cases and further study is needed to evaluate the evident co-relation.

(Sat. Mar 2, 2019 3:05 PM - 4:05 PM 第11会場)

[EngO7-4] Intergrated clinical reasoning assessment in simulation crisis management class

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Background
High-fidelity human patient simulation has been advocated as an effective way in crisis management trainning . In KCMH, high-fidelity human patient simulation is used for medical student's training in crisis management in Anesthesiology curriculum. Medical students usually was examined only check list score but it cannot reflect the clinical reasoning during their performances. Diagnostic justification is the tool to assess the clinical reasoning. Clinical reasoning ability is crucial skill for medical students to perform the proper management.
Objectives
- To evaluate the level of clinical reasoning of medical student on simulation-based training in crisis situation
- To evaluate the correlation between clinical reasoning score and clinical checklists score of medical students on simulation-based training in crisis situation
Methods and materials
All 5th year medical students in 2016 and 2017 at KCMH were trained in crisis management class simulation-

based training and were examined at the end of the course. The 5th year medical students were examined in crisis situation with high-fidelity human patient simulation. Two raters graded the clinical performance checklists and diagnostic justification score for each student. Diagnostic justification score were compared with the clinical performance checklists.

Results

198 medical students were examined after the end of crisis management class. The inter-rater reliability of clinical performance checklist were moderate to high reliability (kappa 0.6) .The inter-rater reliablility of diagnostic justification had high agreement. There were 77.3% of students were classified in correct management (clinical performance checklist) but only 47% of students were classified in complete or excellent in diagnostic justification performance. However, 32.2% of students who were classified in correct management were graded in poor and borederline diagnostic justification performance. Median clinical check list score was 11.17 and Median diagnostic justification score was 7.5 . The inter-rater reliability of clinical check list score and diagnostic justification score were 0.92 and 0.9, respectively. The correlation of clinical check list score and diagnostic justification score was 0.43

Conclusions

In crisis management training with high-fidelity human patient simulation, student diagnostic justification performance was inconsistent across the skill performance checklist. Some students were classified in correct management(clinical performance checklist) but when we focus on their clinical reasoning may be not rational. Diagnostic justification performance may be benefit to assess the clinical reasoning in training program

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(Sat. Mar 2, 2019 3:05 PM - 4:05 PM 第11会場)

[EngO7-5] The epidemiology and characteristics of acute kidney injur y in the intensive care unit in resource limited settings: *A prospective multicenter study*

Nattachai Srisawat[1,2], Win Kulvichit[1,2], Noppathorn Mahamitra[1], Cameron Hurst[3], Kearkiat Praditpornsilpa[1], Nuttha Lumlertgul[1], Kriang Tungsanga[1], Somchai Eiam-Ong[1], Visith Sitprija[1,4], John A Kellum[2], Konlawij Trongtrakul[5], SEA-AKI study group （1.Division of Nephrology, Department of Medicine, Faculty of Medicine, Chulalongkorn University, and King Chulalongkorn Memorial Hospital, Thailand, 2.Center for Critical Care Nephrology; The CRISMA Center, Department of Critical Care Medicine, University of Pittsburgh School of Medicine, USA, 3.Statistics Unit, QIMR Berghofer Medical Research Institute, Australia, 4.Queen Saovabha Memorial Institute, Thai Red Cross, Thailand, 5.Vajira Hospital, Navamindradhiraj University, Thailand）

Purpose: Etiologies for acute kidney injury (AKI) vary by geographic region and socioeconomic status. While considerable information is now available on AKI in the Americas, Europe and China, large comprehensive epidemiologic studies of AKI from Southeast Asia (SEA) are still lacking. The aim of this study was to investigate the rates and characteristics of AKI among intensive care unit (ICU) patients in Thailand.

Methods: We conducted the largest prospective observational study of AKI in SEA. The data was serially collected on the first 28 days of ICU admission by registration in electronic web-based format. AKI status was defined by full KDIGO criteria. We used AKI occurrence as the clinical outcome and explored the impact of modifiable and non-modifiable risk factors on the development and progression of AKI.

Results: We enrolled 5,476 patients from 17 ICU centers across Thailand from February 2013 to July 2015.

After excluding patients with end-stage renal disease and those with incomplete data, AKI occurred in 2,471 of 4,668 patients (52.9%). Overall, the maximum AKI stage was stage 1 in 7.5%, stage 2 in 16.5% and stage 3 in 28.9%. In the multivariable, adjusted model, we found that age, female sex, regional hospital, medical ICU, high BMI, primary diagnosis of cardiovascular related disease and infectious disease, increased APACHE II, non-renal SOFA scores, underlying anemia, and use of vasopressors were all independent risk factors of AKI development.

Conclusions: In Thai ICUs, AKI is very common. Identification of risk factors of AKI development will help in the development of a prognostic scoring model for this population and should help in decision making for timely intervention, ultimately leading to better clinical outcomes.

(Sat. Mar 2, 2019 3:05 PM - 4:05 PM 第11会場)

[EngO7-6] Predictive factors of abnormal finding detected by computerized tomography scan of brain among medical critically ill patients

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Background

Computerized tomography (CT) scan is an investigation of choice for diagnosis causes of acute neurological deterioration among medical critically ill patients; however, transferring patient to perform CT scan associate with complications. Transferring only high suspicious case could avoid unnecessary transferring associate complications.

Objective

To identify predictive factors for abnormal finding detection from CT scan of brain among medical critically ill patients who developed acute neurological deterioration.

Methods

A retrospective chart review, enrolled patient in medical intensive care unit (ICU), who developed acute alteration of consciousness or neurological deficit and was underwent CT scan of brain during 2007 to 2017. The primary outcome was radiological confirmed acute onset hemorrhagic or ischemic stroke. Patient’ s demographics data, neurological examination and laboratory findings were recorded. To identify predictive factors of abnormal finding detected by CT scan, uni-variated and multi-variated analysis was performed.

Results

A total of 113 ICU patients were included. CT scan showed hemorrhagic stroke in 17 patients (15.0%) and ischemic stroke in 35 patients (30.9%). Comparing with no abnormal neurological finding detected by CT scan, patients with hemorrhagic stroke associated with significant higher blood pressure, lower Glasgow coma scale and alkalosis. While, patients with ischemic stroke associated with older age and alkalosis. Multi-variated analysis identify abnormal pupil examination is an independent predictor of hemorrhagic stroke (relative risk, 26.86; 95% CI, 3.68-196.29; P= 0.001) and abnormal Babinski’ s sign is an independent predictor of ischemic stroke (relative risk, 4.58; 95% CI, 1.14-18.49; P= 0.032).

Conclusions

Critically ill patient who developed acute neurological deterioration, abnormal pupil examination is a predictive factor of hemorrhagic stroke while abnormal Babinski’ s sign is a predictive factor of ischemic stroke.

English Session

[EngO8] English Session8

Chair:Takaki Naito(Department of Emergency and Critical Care Medicine, St. Marianna University School of Medicine, Japan)

Sat. Mar 2, 2019 4:10 PM - 5:10 PM 第11会場 (国立京都国際会館1F Room C-2)

[EngO8-1] Newly introduced educational program on coping with ICU surge during the Mass Casualty Incident

Takamitsu Kodama[1], Eiji Kawamoto[2], Yasuhiro Irie[3], Yoichi Kase[4], Masashi Nakagawa[5] （1.Aichi Medical University, Center for Disaster Medical Sciences, Japan, 2.Mie University Hospital, Medical Emergency Center, Japan, 3.Seirei Yokohama Hospital, Department of Emergency Medicine, Japan, 4.Jikei University Kashiwa Hospital, Department of Anesthesiology, Japan, 5.Tokyo Women’ s Medical University, Department of Intensive Care Medicine, Japan）

[EngO8-2] Development of an easy-to-use questionnaire for critical care nursing competence related to patient safety in Japan: a cross-sectional study

Masatoshi Okumura[1], Tomonori Ishigaki[2], Kazunao Mori[1], Yoshihiro Fujiwara[1] （1.Department of Anesthesiology, Aichi Medical University, Japan, 2.Department of Business Administration, Nanzan University, Japan）

[EngO8-3] The patient’ s life inside hospital difference between Japan and Thailand

Nobuichiro Tamura[1], Tawatchai Impool[2] （1.Kurashiki Central Hospital, Japan, 2.KhonKaen Hospital, Thailand）

[EngO8-4] Successful management fatal systemic air embolism of CT-guided lung biopsy: Case report

Yi-Pin Chou[1,3,4], Tung-Ho Wu[2,3], Hsing-Lin Lin[3] （1.Division of Thoracic Surgery, Department of Surgery, Veterans General Hospital, Taiwan, 2.Division of Cardiovascular Surgery, Department of Surgery, Veterans General Hospital, Taiwan, 3.Department of Critical Care Medicine, Veterans General Hospital, Taiwan, 4.Division of Trauma, Department of Emergency, Veterans General Hospital, Taiwan）

[EngO8-5] Trauma system including trauma center: a death review from premature trauma center in Korea

Byungchul Yu, Mina Lee, Giljae Lee, Jungnam Lee （Gachon University Gil Medical Center, Korea）

[EngO8-6] Effects of an isotonic balanced sodium solution and acetated Ringer’ s solution on the incidence of hyponatremia in patients who have cardiac surgery

Sunthiti Morakul[1], Naruemol Prachanpanich[1], Piyarat Sittiwanna[1], Sumethee Jiraratkul[2] （1.Department of Anesthesiology, Faculty of Medicine, Ramathibodi Hospital, Mahidol University, Thailand, 2.Department of Surgery, Faculty of Medicine, Ramathibodi Hospital, Mahidol University, Thailand）

(Sat. Mar 2, 2019 4:10 PM - 5:10 PM 第11会場)

[EngO8-1] Newly introduced educational program on coping with ICU surge during the Mass Casualty Incident

Takamitsu Kodama[1], Eiji Kawamoto[2], Yasuhiro Irie[3], Yoichi Kase[4], Masashi Nakagawa[5] （1.Aichi Medical University, Center for Disaster Medical Sciences, Japan, 2.Mie University Hospital, Medical Emergency Center, Japan, 3.Seirei Yokohama Hospital, Department of Emergency Medicine, Japan, 4.Jikei University Kashiwa Hospital, Department of Anesthesiology, Japan, 5.Tokyo Women’ s Medical University, Department of Intensive Care Medicine, Japan）

Background: Frequency of big natural disaster trends upward. Besides that, risk of terrorism has become growing concern. Medical facility has the obligation to conduct the affairs of the disaster countermeasures. Especially more and more attention has been drawn to strategies for ICU response to mass casualty incidents (MCI). It is required to promote the response plan to realize “ Do the greatest good for the greatest number of potential survivors”. However, the preparedness is delayed although the Tokyo Olympic Games is coming up in two years. This is a big threat for homeland security in our country. To resolve this issue, we established a new educational program.
Materials and Methods: Educational program includes interactive didactic lecture and small group discussion in one hour. Instructor gives a lecture on the importance of coping with ICU surge at the beginning of the program. Then, each small group is provided for some topics of discussion. At the end, summary based on the discussion is released and consider by all participants. Educational effectiveness is analyzed through the surveillance questionnaires and simple examination paper before and after the program. The questionnaires are: A. knowledge acquisition about coping with ICU surge, B. promotion of understanding by small group discussion, C. raising awareness of ICU management during the MCI and D. importance of learning disaster countermeasures in ICU.
Results: All participants (16 MDs, 5 RNs, 1 CE, and 1 PT) answered the questionnaires. According to the surveillance, the numbers of participants who scored more than four points out of five were as follows; A was 18 (78.3%), B was 19 (82.6%), C was 19 (82.6%), and D was 18 (78.3%), respectively. The number of average correct answers on simple examination paper increased from 1.26 to 2.22 out of 4.00 ($p < 0.05$).
Discussions: Participants can obtain relevant knowledges and skills by short time education program. We have to recognize that ICU surge can happen to any medical facilities at any time, then it is needed to make preparation keeping that in mind. At this time there is little awareness of disaster countermeasures among critical care providers, although Japan has a mass gathering coming up in 2020 and comes to face the threat of terrorisms. Not only efficient educational program but also stimulating motivation for learning is demanded.
Conclusion: Educational program on coping with ICU surge for critical care providers is effective and useful.

(Sat. Mar 2, 2019 4:10 PM - 5:10 PM 第11会場)

[EngO8-2] Development of an easy-to-use questionnaire for critical care nursing competence related to patient safety in Japan: a cross-sectional study

Masatoshi Okumura[1], Tomonori Ishigaki[2], Kazunao Mori[1], Yoshihiro Fujiwara[1] （1.Department of Anesthesiology, Aichi Medical University, Japan, 2.Department of Business Administration, Nanzan University, Japan）

Background
ICU nurses need a wide range of competences, but the most critical competence will be related to patient safety. However, there is no method to easily measure ICU-nurse competences for patient safety. There is a saying that “If you can’t measure it, you can’t manage it.” We should measure and evaluate ICU-nurse competences, intervene in inferior competences, and reevaluate. The purpose of this study was to develop an easy-to-use questionnaire for critical care nursing competence related to patient safety.
Methods
A cross-sectional, descriptive, explorative study was designed for ICU-nurses in Aichi Medical University Hospital. Data were collected from August 1, 2017 to March 31, 2018.
Critical Care Nursing Competence Questionnaire for Patient Safety (C3Q-safety) is a 24-item scale designed to detect the nursing competence related to patient safety in intensive care unit. Items were developed through the nurse competencies of American Association of Colleges of Nursing (AACN), the clinical ladder of Japanese Nursing Association, and interviews of ICU physicians and ICU nurse practitioners.
Results
A total of 130 nurses participated in this study (response rate 76%). The participants were primarily women (n = 74, 80.4%). The age distribution was mostly a group of 20-29 years old (n = 63, 68.5%). Years working as a nurse ranged from 1 to 25 (mean 6.5; SD 6.0). Years working as an ICU-nurse ranged from 1 to 17 (mean 4.1, SD 3.4). The clinical ladder of Japanese Nursing Association was 0 most (n=42, 45.7%). The Certified Nurse in Intensive Care in Japanese Nursing Association was nine (9.8%). Factor analysis identified five factors, and we named them Basic practical skill, Advanced practical skill, Professionalism, Clinical judgement, and Collaboration respectively. Cronbach’s alpha indicated 0.65 to 0.75. Each of the five factors showed a positive correlation with each other (0.31 to 0.52). Total score was significantly higher for certified nurses, longer-nursing-experience nurses, longer-ICU-experience nurses, and higher-ladder nurses.
Conclusion
We developed an easy-to-use questionnaire for critical care nursing competence related to patient safety. The questionnaire was able to detect five factors, and the factors showed a positive correlation with each other. Further assessments of its reliability and validity are recommended.

(Sat. Mar 2, 2019 4:10 PM - 5:10 PM 第11会場)

[EngO8-3] The patient’s life inside hospital difference between Japan and Thailand

Nobuichiro Tamura[1], Tawatchai Impool[2] （1.Kurashiki Central Hospital, Japan, 2.KhonKaen Hospital, Thailand）

【Introduction】 Patient’s life inside hospital is very important for patient-centered care. The environmental change which is isolation from ordinary their life after admission sometimes develop delirium or dementia progression. Author is now a trauma surgeon trainee in khonkaen hospital in Thailand and report the difference of patient’s life inside hospital between Thailand and Japan.
【Method】 Author’s assessment of patient’s life in Kurashiki central hospital, Japan and Khonkaen hospital, Thailand.
【Result】 In Japanese hospital each beds are separated by curtain even in non-individual room because of patient’s privacy protection. However, beds in trauma ward of khonkaen hospital are not separated excluding during treatment. Many family members visit patient, stay around bed and talk with patients.
【Conclusion】 Japanese hospital environment protects patients privacy, however separates from social

participation. Family visiting depends on national culture and family situation. Recently family engagement and rehabilitation directing social activity are focused, so we should care patient’ s life inside hospital in each countries.

(Sat. Mar 2, 2019 4:10 PM - 5:10 PM 第11会場)

[EngO8-4] Successful management fatal systemic air embolism of CT-guided lung biopsy: Case report

Yi-Pin Chou[1,3,4], Tung-Ho Wu[2,3], Hsing-Lin Lin[3] （1.Division of Thoracic Surgery, Department of Surgery, Veterans General Hospital, Taiwan, 2.Division of Cardiovascular Surgery, Department of Surgery, Veterans General Hospital, Taiwan, 3.Department of Critical Care Medicine, Veterans General Hospital, Taiwan, 4.Division of Trauma, Department of Emergency, Veterans General Hospital, Taiwan）

Introduction

Systemic air embolism (SAE) is a rare complication which may occur during CT guided lung biopsy. It happens very fast and often causes prompt collapse of the patient. Acute myocardial infarction and brain infarction caused by the SAE can lead to sudden death of patient. There’ s no existing guideline or consensus on treating such condition. This case report aimed to share our experience of successfully rescuing a patient from life threatening systemic air embolism during CT guided biopsy of a lung nodule.

Case Presentation

A 70-year-old man who underwent CT guided lung biopsy for a nodule located at Right lower lobe, encountered a cough induced systemic air embolism during biopsy procedure. He progressed into cerebral and myocardial infarction in short time. He was intubated at scene, resuscitated initially and admitted to our ICU for further managmenet. Then, he received hyperbaric oxygen (HBO) treatment after stabilization. We arranged emergent hyperbaric Oxygen(HBO) therapy with set pressure of 3 ATA at around 24 hours after the event. Cardiac enzymes and function returned normal first and near full recovery of neurologic function was observed with the sequela of reduced fine motor control.

Conclusion

HBO therapy is essential to the treatment of SAE and can benefit in air absorption and symptom improvement. There was no consensus in treatment pressure, time and course, further study should be done to setup proper protocol for these patients.

(Sat. Mar 2, 2019 4:10 PM - 5:10 PM 第11会場)

[EngO8-5] Trauma system including trauma center: a death review from premature trauma center in Korea

Byungchul Yu, Mina Lee, Giljae Lee, Jungnam Lee （Gachon University Gil Medical Center, Korea）

Introduction: Trauma deaths can be preventable if the trauma system is well established. The objective is to assess all trauma deaths in trauma center.

Method: We analyzed 294 deaths associated with trauma for 3-year period. Variables including Glasgow Coma Scale (GCS), Revised Trauma Score (RTS) and Trauma and Injury Severity Score (TRISS) were evaluated.

Result: 206 (70.1%) patients were male and mean age was 56.5 years. Most of patients (89.1%) were injured

by blunt mechanism. Mean GCS, ISS, TRISS were 5.64, 27.1, 0.39, respectively.
Conclusion: Evaluation of trauma deaths can improve trauma center performance.

(Sat. Mar 2, 2019 4:10 PM - 5:10 PM 第11会場)

[EngO8-6] Effects of an isotonic balanced sodium solution and acetated Ringer’ s solution on the incidence of hyponatremia in patients who have cardiac surgery

Sunthiti Morakul[1], Naruemol Prachanpanich[1], Piyarat Sittiwanna[1], Sumethee Jiraratkul[2] （1.Department of Anesthesiology, Faculty of Medicine, Ramathibodi Hospital, Mahidol University, Thailand, 2.Department of Surgery, Faculty of Medicine, Ramathibodi Hospital, Mahidol University, Thailand）

Background: Perioperative hyponatremia is common in patients with cardiac surgery and may be directly responsible for adverse outcomes. Most perioperative fluid is balanced crystalloid, which is slightly hypotonic, such as acetated Ringer’ s or lactated Ringer’ s solution. However, there is an isotonic balanced crystalloid called Sterofundin, but chloride levels are still high in SF. In this study, we investigated the effect of Sterofundin versus acetated Ringer’ s solution on the incidence of hyponatremia and hyperchloremia, and serum sodium and chloride levels.
Methods: We conducted a prospective, randomized, clinical trial in 82 patients aged 18 to 70 years who underwent elective cardiac surgery from August 2015 to November 2015.
Results: Three patients dropped out of the study because they received saline. A total of six (15.4%) patients in the acetated Ringer’ s solution group and one (2.5%) patient in the Sterofundin group had hyponatremia (risk difference: −0.129; 95% CI: −0.252 to −0.006; P = 0.06). There were no between-group differences in serum sodium levels and the incidence of hyperchloremia between the groups. Serum chloride levels were significantly higher in the Sterofundin group than in the acetated Ringer’ s solution group (108.1 ± 3.28 vs 106.3 ± 3.29 mmol/L; mean difference [95% CI]: −1.787 mmol/L [−3.281 to −0.294], P = 0.02).
Conclusions: The incidence of hyponatremia is not different between Sterofundin and acetated Ringer’ s solution solutions during cardiac surgery. Serum chloride levels are increased with Sterofundin, but the incidence of hyperchloremia is not affected by Sterofundin.