

Intensive Care

Current Awareness Newsletter



October 2017
(Quarterly)

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November

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10th Friday	Critical Appraisal
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Tables of Contents from Critical Care journals

The links below will take you to the full Tables of Contents.

The Library does not have a subscription for all the journals listed, but we can always source the articles through **inter-library loan**. If you require full text articles please email: library@uhbristol.nhs.uk.

Critical Care Medicine

October 2017 - Volume 45 - Issue 10

Current Opinion in Critical Care

October 2017 - Volume 23 - Issue 5

Critical Care

October 2017 - Volume 21

Intensive and Critical Care Nursing

August 2017 Volume 41

Nursing Journals:

Nursing Times

September 2017

Nursing Standard

Volume 32, Issue 5 | 27 September 2017

Nursing in Critical Care

September 2017 Volume 22, Issue 5

Updates

NICE National Institute for
Health and Care Excellence

[Occupational Therapy in the Intensive Care Unit: A Systematic Review](#)

Source: [PubMed](#) - 10 July 2017 - Publisher: Occupational Therapy In Health Care [Read Summary](#)

[The impact of frailty on intensive care unit outcomes: a systematic review and meta-analysis](#)

Source: [PubMed](#) - 01 August 2017 - Publisher: Intensive Care Medicine [Read Summary](#)

[An integrative review of supports, facilitators and barriers to patient-centred nursing in the intensive care unit](#)

Source: [PubMed](#) - 12 July 2017 - Publisher: Journal Of Clinical Nursing [Read Summary](#)

[Characterization of Guideline Evidence for Off-label Medication Use in the Intensive Care Unit](#)

Source: [Medicines Management Collection](#) - 01 July 2017 - Publisher: The Annals Of Pharmacotherapy [Read Summary](#)

[Families on adult intensive care units: Are they really satisfied? A literature review](#)

Source: [PubMed](#) - 24 August 2017 - Publisher: Australian Critical Care : Official Journal Of The Confederation Of Australian Critical Care Nurses [Read Summary](#)

[The Effects of red Blood Cell Transfusion on Tissue Oxygenation and the Microcirculation in the Intensive Care Unit: A Systematic Review](#)

Source: [PubMed](#) - 21 July 2017 - Publisher: Transfusion Medicine Reviews [Read Summary](#)

[Effectiveness of collaboration between emergency department and intensive care unit teams on mortality rates of patients presenting with critical illness: a systematic review](#)

Source: [Joanna Briggs Institute](#) - 01 September 2017



[Heat and moisture exchangers versus heated humidifiers for mechanically ventilated adults and children](#)

Donna Gillies , David A Todd , Jann P Foster and Bisanth T Batuwitage **Online Publication Date: September 2017**

[Harms of off-label erythropoiesis-stimulating agents for critically ill people](#)

Bitia Mesgarpour , Benedikt H Heindinger , Dominik Roth , Susanne Schmitz , Cathal D Walsh and Harald Herkner **Online Publication Date: August 2017**

[Predictive scoring systems in the intensive care unit](#)

- **[Summary and recommendations](#)**

Literature review current through: Aug 2017. | This topic last updated: Jan 27, 2017.

[Post-intensive care syndrome \(PICS\)](#)

- **[Summary and recommendations](#)**

Literature review current through: Aug 2017. | This topic last updated: Sep 08, 2017.

[Palliative care: Issues in the intensive care unit in adults](#)

- **[Summary and recommendations](#)**

Literature review current through: Aug 2017. | This topic last updated: Jun 24, 2016.

[What's new in pulmonary and critical care medicine](#)

Literature review current through: Aug 2017. | This topic last updated: Sep 25, 2017.

[Nutrition support in critically ill patients: An overview](#)

- **[Summary and recommendations](#)**

Literature review current through: Aug 2017. | This topic last updated: Jun 16, 2017.

[Pain control in the critically ill adult patient](#)

- **[Summary and recommendations](#)**

Literature review current through: Aug 2017. | This topic last updated: Nov 30, 2016.

[Fever in the intensive care unit](#)

- **[Summary and recommendations](#)**

Literature review current through: Aug 2017. | This topic last updated: Sep 20, 2016.

[Stress ulcer prophylaxis in the intensive care unit](#)

- **[Summary and recommendations](#)**

Literature review current through: Aug 2017. | This topic last updated: Jun 28, 2017.



[KDIGO Announces Publication of the Living Kidney Donor Guideline](#)

(Brussels, Belgium) – – – Kidney Disease: Improving Global Outcomes (KDIGO) announces the publication of the Clinical Practice Guideline on Living Kidney Donation this week in the journal *Transplantation*. The guideline is based on global science and focuses on the evaluation of potential living kidney donors and the care of donors after donation. Living kidney

[NEWS JULY 26, 2017](#)

KDIGO Guidelines:

<http://kdigo.org/guidelines/>



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Recent Articles from the Healthcare Databases

Below is a selection of articles related to medically unexplained symptoms recently added to the healthcare databases.

- [Ventilation: pneumonia, infection and oral care](#)
- [Life Support, Resuscitation and Temperature Targets](#)
- [Acute Kidney Injury and Renal Therapies](#)
- [Delirium and Sleep Deprivation](#)
- [End of Life Care and Treatment Withdrawal](#)

If you would like any of the following articles in full text, or if you would like a more focused search on your own topic, then get in touch: library@uhbristol.nhs.uk

Ventilation: pneumonia, infection and oral care

A simplified prevention bundle with dual hand hygiene audit reduces early-onset ventilator-associated pneumonia in cardiovascular surgery units: An interrupted time-series analysis.

Author(s): Su, Kang-Cheng; Kou, Yu Ru; Lin, Fang-Chi; Wu, Chieh-Hung; Feng, Jia-Yih;

Source: PloS one; 2017; vol. 12 (no. 8); p. e0182252

Publication Type(s): Journal Article

Available in full text at [PLOS ONE](#) - from National Library of Medicine

Abstract:BACKGROUND To investigate the effect of a simplified prevention bundle with alcohol-based, dual hand hygiene (HH) audit on the incidence of early-onset ventilation-associated pneumonia (VAP).METHODS This 3-year, quasi-experimental study with interrupted time-series analysis was conducted in two cardiovascular surgery intensive care units in a medical center. Unaware external HH audit (eHH) performed by non-unit-based observers was a routine task before and after bundle implementation. Based on the realistic ICU settings, we implemented a 3-component bundle, which included: a compulsory education program, a knowing internal HH audit (iHH) performed by unit-based observers, and a standardized oral care (OC) protocol with 0.1% chlorhexidine gluconate. The study periods comprised 4 phases: 12-month pre-implementation phase 1 (eHH+/education-/iHH-/OC-), 3-month run-in phase 2 (eHH+/education+/iHH+/OC+), 15-month implementation phase 3 (eHH+/education+/iHH+/OC+), and 6-month post-implementation phase 4 (eHH+/education-/iHH+/OC-).RESULTS A total of 2553 ventilator-days were observed. VAP incidences (events/1000 ventilator days) in phase 1-4 were 39.1, 40.5, 15.9, and 20.4, respectively. VAP was significantly reduced by 59% in phase 3 (vs. phase 1, incidence rate ratio [IRR] 0.41, P = 0.002), but rebounded in phase 4. Moreover, VAP incidence was inversely correlated to compliance of OC ($r^2 = 0.531$, P = 0.001) and eHH ($r^2 = 0.878$, P < 0.001), but not applied for iHH, despite iHH compliance was higher than eHH compliance during phase 2 to 4. Compared to eHH, iHH provided more efficient and faster improvements for standard HH practice. The minimal compliances required for significant VAP reduction were 85% and 75% for OC and eHH (both P < 0.05, IRR 0.28 and 0.42,

respectively).CONCLUSIONSThis simplified prevention bundle effectively reduces early-onset VAP incidence. An unaware HH compliance correlates with VAP incidence. A knowing HH audit provides better improvement in HH practice. Accordingly, we suggest dual HH audit and consistent bundle performance does matter in quality-of-care VAP prevention.

Extended infusion versus intermittent infusion of imipenem in the treatment of ventilator-associated pneumonia.

Author(s): Ibrahim, Mohamed M; Tammam, Tarek Fouad; Ebaed, Mohy El Deen; Sarhan, Hatem A

Source: Drug design, development and therapy; 2017; vol. 11 ; p. 2677-2682

Publication Type(s): Journal Article

Available in full text at [Drug Design, Development and Therapy](#) - from National Library of Medicine

Abstract:BACKGROUND Mechanical ventilation support can be the main source of ventilator-associated pneumonia (VAP). VAP is a serious infection that may be associated with dangerous gram-negative bacteria mainly, and it leads to an increase in the mortality in the intensive care unit (ICU). Imipenem is one of the strongest antibiotics now available for treating VAP which is associated with gram-negative and gram-positive bacteria, and it belongs to beta-lactam antibiotic group (carbapenem).OBJECTIVE This study tried to investigate the efficacy of imipenem against VAP when it was infused within 180 min versus the efficacy when it was infused within 30-60 min.SETTING This study was conducted in main ICU in general hospital which consists of surgical and medical beds within 2 years. One hundred and eighty-seven patients were enrolled on it.METHOD This study is a retrospective cohort which was conducted within 2 years. The efficacy of imipenem which was administered by intermittent infusion (30-60 min) within first year was compared with the efficacy of imipenem which was administered by extended infusion (180 min) within second year in the field of VAP curing and cost reduction. All data were collected retrospectively from patient medical files and were statistically analyzed by SPSS version 20.MAIN OUTCOME The study was designed to measure clinical and cost reduction outcomes, mortality and hospital stay.RESULTS The results indicated that there is a significant decrease in mortality, number of recurrent infection, and ICU stay length, and the number of mechanical ventilator days was associated with extended imipenem infusion during the second year of the study.CONCLUSION The use of imipenem with extended infusion over 3 hours enhances its clinical outcomes in the treatment of VAP.

Ventilator associated pneumonia, incidence and risk factors in emergency intensive care unit Zagazig university hospitals

Author(s): Othman H.A.; Gamil N.M.; Fouad T.A.; Elgazzar A.E.M.

Source: Egyptian Journal of Chest Diseases and Tuberculosis; 2017

Publication Type(s): Article In Press

Abstract:Background: VAP is a common complication in patients receiving mechanical ventilation, and considered to be one of the most common causes of morbidity and mortality, VAP continues to be a major challenge to the critical care physicians and a common nosocomial infection occurring in mechanically ventilated patients, knowledge of important risk factors predisposing to VAP may be useful in implementing simple and effective preventive measures. Objective: To determine the incidence, risk factors of ventilator-associated pneumonia and to get appropriate preventive strategies or institutional policies to decrease rate of infection. Patients and method: One hundred mechanically ventilated patients admitted in the emergency and trauma ICU in Zagazig university hospitals were included in a prospective study to identify the incidence and risk factors of VAP. The clinical suspicion of VAP was done by simplified version of Clinical Pulmonary Infection Score (CPIS) >6. Identification of VAP pathogens was done through specimen collection by bronchoalveolar lavage using fiberoptic bronchoscope thorough the trachea via ETT or tracheostomy tube, the

sample was sent for quantitative culture. Results: The incidence of VAP was 22%, impaired consciousness, reintubation and tracheostomy are the significant risk factors of late onset VAP, regarding to the causative pathogens of VAP, klebsiella pneumoniae, acinetobacter and pseudomonas are the most commonly detected pathogens. Conclusion: Incidence of VAP was 22%. Tracheostomy, reintubation and impaired consciousness are highly significant risk factor for the development of VAP mostly late onset VAP. Copyright © 2017 The Egyptian Society of Chest Diseases and Tuberculosis.

Multidrug Resistance Acinetobacter Bacteremia Secondary to Ventilator-Associated Pneumonia: Risk Factors and Outcome.

Author(s): Brotfain, Evgeni; Borer, Abraham; Koifman, Leonid; Saidel-Odes, Lisa; Frenkel, Amit

Source: Journal of Intensive Care Medicine (Sage Publications Inc.); Oct 2017; vol. 32 (no. 9); p. 528-534

Publication Type(s): Academic Journal

Abstract: Purpose: Acinetobacter baumannii is a multidrug resistant (MDR), gram-negative bacterium commonly implicated in ventilator-associated pneumonia (VAP) in critically ill patients. Patients in the intensive care unit (ICU) with VAP often subsequently develop A baumannii bacteremia, which may significantly worsen outcomes. Materials and Methods: In this study, we retrospectively reviewed the clinical and laboratory records of 129 ICU patients spanning 6 years with MDR A baumannii VAP; 46 (35%) of these patients had concomitant MDR A baumannii bacteremia. Results: The ICU mortality rate was higher in patients with VAP having A baumannii bacteremia compared to nonbacteremic patients (32.4% vs 9.6% respectively, P < .05). Patients with VAP and bacteremia had a mean age of 65 years, an Acute Physiology and Chronic Health Evaluation II (APACHE-II) score higher than 20, a Sequential Organ Failure Assessment (SOFA) score higher than 7 on the day of bacteremia, and the presence of comorbid disease (chronic obstructive pulmonary disease [COPD] and chronic renal failure) were found to be independent risk factors for in-hospital mortality in this population. Multidrug resistant A baumannii was not an independent risk factor for mortality. Conclusion: Although the presence of comorbid diseases (COPD and chronic renal failure) and severity of disease (APACHE > 20 and SOFA > 7) were found to be independent risk factors for ICU mortality, MDR A baumannii bacteremia was not an independent risk factor for mortality in our critically ill population.

Treatment of Achromobacter Ventilator-Associated Pneumonia in Critically Ill Trauma Patients.

Author(s): Wood, G Christopher; Jonap, Brittany L; Maish, George O; Magnotti, Louis J

Source: The Annals of pharmacotherapy; Sep 2017 ; p. 1060028017730838

Publication Type(s): Journal Article

Abstract: BACKGROUND Achromobacter sp are nonfermenting Gram-negative bacilli (NFGNB) that rarely cause severe infections, including ventilator-associated pneumonia (VAP). Data on the treatment of Achromobacter pneumonia are very limited, and the organism has been associated with a high mortality rate. Thus, more data are needed on treating this organism. OBJECTIVE To evaluate the treatment of Achromobacter VAP in critically ill trauma patients. METHOD This retrospective, observational study evaluated critically ill trauma patients who developed Achromobacter VAP. A previously published pathway for the diagnosis and management of VAP was used according to routine patient care. This included the use of quantitative bronchoscopic bronchoalveolar lavage cultures to definitively diagnose VAP. RESULTS A total of 37 episodes of Achromobacter VAP occurred in 34 trauma intensive care unit patients over a 15-year period. The most commonly used definitive antibiotics were imipenem/cilastatin, cefepime, or trimethoprim/sulfamethoxazole. The primary outcome of clinical success was achieved in 32 of 37 episodes (87%). This is similar to previous studies of other NFGNB VAP (eg, Pseudomonas, Acinetobacter) from the study center. Microbiological success was seen in 21 of 28 episodes (75%),

and VAP-related mortality was 9% (3 of 34 patients).CONCLUSIONS *Achromobacter* is a rare but potentially serious cause of VAP in critically ill patients. In this study, there was an acceptable success rate compared with other causes of NFGNB VAP in this patient population.

Evaluation of the 2016 Infectious Diseases Society of America/American Thoracic Society Guideline Criteria for Risk of Multi-drug Resistant Pathogens in Hospital-acquired and Ventilator-associated Pneumonia Patients in the Intensive Care Unit.

Author(s): Ekren, Pervin Korkmaz; Ranzani, Otavio T; Ceccato, Adrian; Li Bassi, Gianluigi;

Source: American journal of respiratory and critical care medicine; Sep 2017

Publication Type(s): Journal Article

Available in full text at [American journal of respiratory and critical care medicine \[Am J Respir Crit Care Med\]](#) NLMUID: 9421642 - from EBSCOhost

Respiratory research networks in Europe and beyond: aims, achievements and aspirations for the 21st century.

Author(s): Martin-Loeches, Ignacio; Zampieri, Fernando; Pova, Pedro; Ranzani, Otavio

Source: Breathe (Sheffield, England); Sep 2017; vol. 13 (no. 3); p. 209-215

Publication Type(s): Journal Article

Available in full text at [Breathe](#) - from Highwire Press

Abstract:Healthcare-associated infection, such as intensive care unit (ICU)-related respiratory infections, remain the most frequently encountered morbidity of ICU admission, prolonging hospital stay and increasing mortality rates. The epidemiology of ICU-related respiratory infections, particularly nonventilated ICU-associated pneumonia and ventilator-associated tracheobronchitis, appears to be quite different among different countries. European countries have different prevalence, patterns and mechanism of resistance, as well as different treatments chosen by different attending physicians. The classical clinical research process in respiratory infections consists of the following loop: 1) identification of knowledge gaps; 2) systematic review and search for adequate answers; 3) generation of study hypotheses; 4) design of study protocols; 5) collection clinical data; 6) analysis and interpretation of the results; and 7) implementation of the results in clinical practice.

The dynamics of the pulmonary microbiome during mechanical ventilation in the intensive care unit and the association with occurrence of pneumonia.

Author(s): Zakharkina, Tetyana; Martin-Loeches, Ignacio; Matamoros, Sébastien; Pova, Pedro

Source: Thorax; Sep 2017; vol. 72 (no. 9); p. 803-810

Publication Type(s): Multicenter Study Journal Article Observational Study

Available in full text at [Thorax](#) - from Highwire Press

Abstract:RATIONALEVentilator-associated pneumonia (VAP) is the most common nosocomial infections in patients admitted to the ICU. The adapted island model predicts several changes in the respiratory microbiome during intubation and mechanical ventilation.OBJECTIVESWe hypothesised that mechanical ventilation and antibiotic administration decrease the diversity of the respiratory microbiome and that these changes are more profound in patients who develop VAP.METHODSIntubated and mechanically ventilated ICU-patients were included. Tracheal aspirates were obtained three times a week. 16S rRNA gene sequencing with the Roche 454 platform was used to measure the composition of the respiratory microbiome. Associations were tested with linear mixed model analysis and principal coordinate analysis.MEASUREMENTS AND MAIN

RESULTS 111 tracheal aspirates were obtained from 35 patients; 11 had VAP, 18 did not have VAP. Six additional patients developed pneumonia within the first 48 hours after intubation. Duration of mechanical ventilation was associated with a decrease in α diversity (Shannon index; fixed-effect regression coefficient (β): -0.03 (95% CI -0.05 to -0.005)), but the administration of antibiotic therapy was not (fixed-effect β : 0.06; 95% CI -0.17 to 0.30). There was a significant difference in change of β diversity between patients who developed VAP and control patients for Bray-Curtis distances ($p=0.03$) and for Manhattan distances ($p=0.04$). Burkholderia, Bacillales and, to a lesser extent, Pseudomonadales positively correlated with the change in β diversity. CONCLUSION Mechanical ventilation, but not antibiotic administration, was associated with changes in the respiratory microbiome. Dysbiosis of microbial communities in the respiratory tract was most profound in patients who developed VAP.

Life Support, Resuscitation and Temperature Targets

Choice of Fluids for Resuscitation of the Critically Ill: What Nurses Need to Know

Author(s): Gross W.; Samarin M.; Kimmons L.A.

Source: Critical Care Nursing Quarterly; 2017; vol. 40 (no. 4); p. 309-322

Publication Type(s): Article

Abstract: Fluid administration is one of the most universal interventions in the intensive care unit; however, there remains a lack of optimal fluid choice in clinical practice. With increasing evidence suggesting that the choice and dose of fluid may influence patient outcomes, it is important to have an understanding of the differences between the various fluid products and these potential effects in order for nurses to navigate the critically ill patient. This article reviews properties, adverse effects, and monitoring of commonly used colloid and crystalloid fluids, providing information that may aid in fluid selection in the intensive care unit. Copyright © 2017 Wolters Kluwer Health, Inc. All rights reserved.

Tolerability of Enteral Nutrition in Mechanically Ventilated Patients with Septic Shock Who Require Vasopressors

Author(s): Merchan C.; Altshuler D.; Aberle C.; Papadopoulos J.; Schwartz D.

Source: Journal of Intensive Care Medicine; Oct 2017; vol. 32 (no. 9); p. 540-546

Publication Type(s): Article

Abstract: Purpose: Enteral nutrition (EN) is often held in patients receiving vasopressor support for septic shock. The rationale for this practice is to avoid mesenteric ischemia. The objective of this study is to evaluate the tolerability of EN in patients with septic shock who require vasopressor support and determine factors associated with tolerance of EN. Materials and Methods: This was a single-center retrospective review of adult patients admitted to the intensive care unit with a diagnosis of septic shock and an order for EN. The primary outcome was EN tolerance. Secondary outcomes included time to initiation of EN from the start of vasopressor(s), length of stay, and mortality. Results: A total of 120 patients were included. Sixty-two percent of patients tolerated EN. The most common reason for intolerance of EN was gastric residuals > 250 mL (74%). No reports of mesenteric ischemia were observed. A multivariate analysis demonstrated that patients with septic shock initiating EN within 48 hours and receiving norepinephrine-equivalent doses of 0.14 $\mu\text{g}/\text{kg}/\text{min}$ or less were more likely to tolerate EN. Conclusion: Based on our observation, early EN may be tolerated and safely administered in patients with septic shock who are adequately fluid resuscitated and receive doses of Copyright © 2017 Author(s).

Intubation is not a marker for coma after in-hospital cardiac arrest: A retrospective study

Author(s): Berg K.M.; Donnino M.W.; Grossestreuer A.V.; Uber A.; Patel P.V.

Source: Resuscitation; Oct 2017; vol. 119 ; p. 18-20

Publication Type(s): Article

Abstract:Introduction In-hospital cardiac arrest (IHCA) strikes over 200,000 people in the United States annually. Targeted temperature management (TTM) is considered beneficial in other settings, but there is no prospective data for IHCA. Recent work on TTM and IHCA found an association between TTM and worse outcome. However, the authors used intubation as a marker for coma to determine eligibility for TTM. The validity of this approach is unexplored. Methods Retrospective, single center study of adult patients with IHCA occurring in an intensive care unit, intubated prior to or during the event, or immediately after ROSC. We evaluated the percentage of patients documented as comatose after arrest, defined as Glasgow Comas Score (GCS) =8. Two sensitivity analyses using different methods for defining coma using post-ROSC GCS were conducted. Results 29/102 (28%) intubated patients had a post-ROSC GCS \geq 8, and 22 (22%) were documented as following commands. Survival in patients with GCS \geq 8 vs. Copyright © 2017 Elsevier B.V.

Withdrawal of treatment after devastating brain injury: post-cardiac arrest pathways lead in best practice.

Author(s): Manara, A. R.; Menon, D. K.

Source: Anaesthesia; Oct 2017; vol. 72 (no. 10); p. 1179-1184

Publication Type(s): Academic Journal

Abstract:The author reflects on withdrawal of treatment after devastating brain injury with the cardiopulmonary resuscitation (CPR) for the people suffering an out of hospital cardiac arrest (OHCA). Topics discussed include management of postresuscitation care in a general or cardiothoracic intensive care unit (ICU), brain injury can be defined as any neurological condition that is assessed at the time of hospital admission and end-of-life care, and possibly organ donation.

Open Abdomen in Trauma and Critical Care.

Author(s): Fitzpatrick, Eleanor R.

Source: Critical Care Nurse; Oct 2017; vol. 37 (no. 5); p. 22-45

Publication Type(s): Academic Journal

Available in full text at [Critical Care Nurse](#) - from EBSCOhost

Abstract:The open abdomen technique and temporary abdominal closure after damage control surgery is fast becoming the standard of care for managing intra-abdominal bleeding and infectious or ischemic processes in critically ill patients. Expansion of this technique has evolved from damage control surgery in severely injured trauma patients to use in patients with abdominal compartment syndrome due to acute pancreatitis and other disorders. Subsequent therapies after use of the open abdomen technique and temporary abdominal closure are resuscitation in the intensive care unit and planned reoperation to manage the underlying cause of bleeding, infection, or ischemia. Determining the need for this potentially lifesaving intervention and managing the wound after the open abdomen has been created are all within the realm of critical care nurses. Case studies illustrate the implementation of the open abdomen technique and patient management strategies.

Changes in neutrophil-to-lymphocyte ratios in postcardiac arrest patients treated with targeted temperature management

Author(s): Baser K.; Bas H.D.; Attaluri P.; Rodrigues T.; Nichols J.; Nugent K.

Source: Anatolian Journal of Cardiology; Sep 2017; vol. 18 (no. 3); p. 215-222

Publication Type(s): Article

Available in full text at [Anatolian journal of cardiology \[Anatol J Cardiol\]](#) NLMUID: 101652981 - from EBSCOhost

Abstract:Objective: The prognostic value of changes in neutrophil-to-lymphocyte ratios (NLR) in cardiac arrest survivors receiving targeted temperature management (TTM) is unknown. The current study investigated NLR in postcardiac arrest (PCA) patients undergoing TTM. Methods: This retrospective single-center study included 95 patients (59 males, age: 55.0+/-17.0 years) with in-hospital and out-of-hospital cardiac arrests who underwent TTM for PCA syndrome within 6 h of cardiac arrest. Hypothermia was maintained for 24 h at a target temperature of 33degreeC. NLR was calculated as the absolute neutrophil count divided by the absolute lymphocyte count. Results: Of the 95 patients, 59 (62%) died during hospital stay. Fewer vasopressors were used in patients who survived. Out-of-hospital cardiac arrest was more frequent in decedents (p=0.005). Length of stay in the hospital and intensive care unit were significantly longer in patients who survived (p=0.0001 and p=0.001, respectively). NLR on admission and during rewarming did not differ between survivors and decedents. NLR during cooling was significantly higher in decedents (p=0.014). Delta NLR cut-off of 13.5 best separated survivors and decedents (AUC=0.68, 95% CI: 0.57-0.79, p=0.003 with a sensitivity and specificity of 64% and 67%, respectively). In multivariate logistic regression analysis, larger increase in NLR was significantly associated with decreased survival (OR: 0.96, 95% CI: 0.94-0.99, p=0.008). Conclusion: Changes in NLR are an independent determinant of survival in patients with return of spontaneous circulation PCA treated with TTM. An NLR change can be used to predict survival in these patients. Copyright © 2017 by Turkish Society of Cardiology.

Quantitative real-time analysis of the sublingual microvascular glycocalyx by emergency room and intensive care unit nurses-the GlycoNurse study

Author(s): Rovas A.; Lukasz A.H.; Pavenstadt H.; Kumpers P.; Vink H.; Sackarnd J.

Source: Infection; Sep 2017; vol. 45 (no. 1)

Publication Type(s): Conference Abstract

Abstract:Introduction: Deterioration of the endothelial glycocalyx (eGC), a protective carbohydrate-rich layer lining the luminal surface of the endothelium, plays a key role in vascular barrier dysfunction and eventually organ-failure in systemic inflammatory response syndrome and sepsis. Early detection of glycocalyx damage could thus become an important goal in critical care. Objectives: This study was designed to determine the feasibility and reproducibility of quantitative, real-time glycocalyx measurements performed by trained nurses in the emergency room (ER) and intensive care unit (ICU). Methods: The observational study included 70 patients admitted to the ER or ICU of a university hospital. The nurse in charge of the patient and a physician performed sublingual microcirculatory measurements using sidestream dark field (SDF) imaging. GlycoCheckTM software for automated data acquisition and analysis was used to analyze the perfused boundary region (PBR), an inverse parameter of endothelial glycocalyx dimensions in vessels with diameters of between 5 and 25 μ m. Results: There were no significant differences in the PBR values obtained by the nurses when compared to those reported by the physician (and which was regarded as the "gold standard" measurement). Intraclass correlation coefficient analysis showed excellent reproducibility between the nurses' and physician's PBRs (0.75 [(95% CI: 0.52-0.87)]). The mean difference between the two PBRs (i.e., the bias) was 0.007 +/- 0.25 μ m. The nurses' PBR assessment had a 90% sensitivity (95% CI: 60-99%) and 90% specificity (95% CI: 80-93%) to identify a severely impaired glycocalyx. Conclusions: ER and ICU nurses can reliably measure glycocalyx dimensions by non-invasive assessment of the PBR. This assessment could become part of standard monitoring and contribute to clinical decision-making and resuscitation protocols in clinical trials and daily practice.

A retrospective study on predictors of 3-month mortality after intraoperative cardiac arrest in adults

Author(s): Park H.-P.; Hur M.; Lee H.-C.

Source: Acta Anaesthesiologica Scandinavica; Sep 2017; vol. 61 (no. 8); p. 1059-1060

Publication Type(s): Conference Abstract

Abstract:Background: Predictive factors of clinical outcomes after intraoperative cardiac arrest have not been fully established. The objective of this study was to identify factors related to 3-month mortality after intraoperative cardiac arrest. Methods: The electronic medical records of 238,648 adult surgical patients from January 2005 to December 2014 were reviewed retrospectively. Characteristics of intraoperative cardiac arrest were documented using the Utstein reporting template. Results: Intraoperative cardiopulmonary resuscitation due to cardiac arrest was performed in 50 patients (21/100,000 surgeries). Nineteen (38%) patients died in the operating room, and thirty-one (62%) patients died within 3 months post-arrest. Duration of cardiac compressions (odds ratio [95% confidence interval], 1.106 [1.017-1.202]; P = 0.019), anaesthesia-related arrest (0.014 [0.000-0.625]; P = 0.028) and initial ventricular tachycardia/fibrillation (0.042 [0.004-0.450]; P = 0.009) were independent factors for 3-month mortality after arrest. Fifteen of the thirty-one patients who were successfully resuscitated from intraoperative cardiac arrest showed unfavourable clinical outcomes (cerebral performance category score 3-5) at 3 months post-arrest. Emergency surgery (8.591 [1.059-69.694]; P = 0.044) and continuous inotrope or vasopressor infusion in the intensive care unit (ICU) (14.625 [1.272-168.155]; P = 0.031) were predictive of unfavourable clinical outcomes at 3 months post-arrest in such patients. Conclusions: Prolonged cardiac compressions, non-shockable cardiac rhythm, and non-anaesthetic cause of the arrest were associated with 3-month mortality after intraoperative cardiac arrest. Emergency surgery and continuous inotrope or vasopressor infusion in the ICU were related to unfavourable clinical outcomes at 3 months post-arrest in patients who were successfully resuscitated from intraoperative cardiac arrest.

Damage Control Resuscitation Across the Phases of Major Injury Care

Author(s): Cantle P.M.; Holcomb J.B.; Roberts D.J.

Source: Current Trauma Reports; Sep 2017; vol. 3 (no. 3); p. 238-248

Publication Type(s): Review

Abstract:Purpose of Review: Trauma damage control has undergone a recent paradigm shift, broadening its focus from surgery to resuscitation. This review details central components of damage control resuscitation (DCR) across the phases of major injury care and the evidence behind its adoption. Recent Findings: Permissive hypotension, minimization of crystalloid fluids, and early balanced blood product resuscitation have each been associated with improved outcomes in hemorrhaging patients. These tactics compliment current strategies of achieving hemorrhage control, including damage control surgery. Summary: DCR is now integrated into care from the injury scene, through the resuscitation bay, the operating room, and into the intensive care unit. Its use limits the physiologic derangement experienced by the injured patient and minimizes preventable death from hemorrhage. It has become the accepted standard of modern trauma care and is shaping contemporary trauma systems and education. Future evidence-based advancements in trauma care will be scrutinized against this standard. Copyright © 2017, Springer International Publishing AG.

Body mass index and outcome of out-of-hospital cardiac arrest patients not treated by targeted temperature management

Author(s): Galatianou I.; Chalkias A.; Karlis G.; Iacovidou N.; Xanthos T.; Apostolopoulos A.; Intas G.

Source: American Journal of Emergency Medicine; Sep 2017; vol. 35 (no. 9); p. 1247-1251

Publication Type(s): Article

Abstract:Background Obesity has been demonstrated to increase the risk of out-of-hospital cardiac arrest (OHCA) and may influence the quality and effectiveness of cardiopulmonary resuscitation. Our aim was to investigate the association between body mass index (BMI) and the outcome of OHCA victims not treated by targeted temperature management. Methods This was a prospective observational study of OHCA patients. The patients were categorized according to BMI into two groups: the normal BMI group (nBMI) and the elevated BMI group (eBMI). The primary endpoint was return of spontaneous circulation (ROSC), while secondary outcomes were survival to intensive care unit (ICU) admission and survival to ICU discharge. Results Of the initial 99 patients who were transported to the Emergency Department, 84 (85%) were included in the study. Mean BMI was 29.8 kg/m². Thirteen (15.5%) patients achieved ROSC and were admitted to the ICU, with the mean duration of ICU length of stay being 6.7 +/- 4.9 days. Survival to ICU admission and ICU discharge were higher in the eBMI group (17.6% vs. 6.25%, p = 0.010 and 10.3% vs. 6.25%, p = 0.021, respectively). Survival to ICU discharge was higher in ventricular fibrillation patients compared to patients with non-shockable rhythms, irrespectively of their BMI (p = 0.002). All patients that survived to ICU discharge did so with a cerebral performance category score of 2. Conclusions Survival to ICU admission and ICU discharge were higher in the eBMI group. Copyright © 2017 Elsevier Inc.

Mortality is Greater in Septic Patients with Hyperlactatemia Than with Refractory Hypotension

Author(s): Gotmaker R.; Peake S.L.; Forbes A.; Bellomo R.

Source: Shock; Sep 2017; vol. 48 (no. 3); p. 294-300

Publication Type(s): Article

Abstract:Background: In septic patients, it is uncertain whether isolated hyperlactatemia (lactate ≥ 4 mmol/L without refractory hypotension) can be used to diagnose septic shock and whether mortality rate differs from that of isolated refractory hypotension (refractory to 1000 mL or greater fluid bolus). Aims: To compare baseline characteristics, treatments, and outcomes of participants enrolled into the Australian Resuscitation in Sepsis Evaluation (ARISE) trial according to the presence of isolated hyperlactatemia or isolated refractory hypotension. Patients: Cohort of 1,332 ARISE participants with sepsis and either isolated hyperlactatemia or isolated refractory hypotension. Methods: We performed a secondary analysis of the ARISE data, constructing a propensity score model to discriminate between hyperlactatemia and isolated refractory hypotension. We analyzed 90-day all-cause mortality using a generalized linear model and inverse propensity score weighting. We modeled length of intensive care unit (ICU) and hospital stay using time to event analyses incorporating mortality as a competing risk. Results: There were 478 participants (35.9%) with isolated hyperlactatemia and 854 (64.1%) with isolated refractory hypotension. They had similar median (interquartile range) ages (66.2 [54.2, 76.3] years vs. 65.2 [50.9, 75.5] years) and similar sources of infection. However, isolated hyperlactatemia participants had higher mean (standard deviation) baseline APACHE II scores (isolated hyperlactatemia 16.2 [6.4]) vs. 14.5 [6.4] for isolated refractory hypotension; P Copyright © 2017 by the Shock Society.

Neurologic consultation and use of therapeutic hypothermia for cardiac arrest

Author(s): Guterman E.L.; Kim A.S.; Josephson S.A.

Source: Resuscitation; Sep 2017; vol. 118 ; p. 43-48

Publication Type(s): Article

Abstract:Objective To determine whether neurologic consultation influences the use of therapeutic hypothermia. Methods We identified adult patients treated for cardiac arrest from October 2009 through September 2015 at 149 academic medical centers and their affiliate hospitals using

discharge diagnosis codes in Vizient database. Neurology consultation was defined as a neurologist participating in patient care at any point during the hospitalization. Use of therapeutic hypothermia was identified using procedure codes. We used multivariable models to evaluate the association between neurologic consultation and therapeutic hypothermia before and after adjustment for patient baseline characteristics and hospital factors including inpatient volume and relative volume of cardiac arrest cases. Results We identified 136,830 hospitalizations for cardiac arrest. The 9,336 (6.8%) encounters involving a neurologist had higher severity of illness, longer hospital stay, and longer intensive care unit stay. There were 5,034 (3.7%) encounters where patients underwent therapeutic hypothermia. Hypothermia use was significantly more common when neurologists were involved during hospitalization (7.9% vs. 3.4%; OR 2.44, 95% CI 2.2-2.6; p Copyright © 2017 Elsevier B.V.

Comparison of Two Surface Cooling Devices for Temperature Management in a Neurocritical Care Unit.

Author(s): Aujla, Gurpreet Singh; Nattanmai, Premkumar; Premkumar, Keerthivaas

Source: Therapeutic hypothermia and temperature management; Sep 2017; vol. 7 (no. 3); p. 147-151

Publication Type(s): Journal Article

Abstract: Fever increases mortality and morbidity and length of stay in neurocritically ill patients. Various methods are used in the neuroscience intensive care unit (NSICU) to control fever. Two such methods involve the Arctic Sun hydrogel wraps and the Gaymar cooling wraps. The purpose of our study was to compare these two methods in neurocritical care patients who had temperature $>37.5^{\circ}\text{C}$ for more than three consecutive hours and that was refractory to standard treatments. Data of patients requiring cooling wraps for treatment of hyperthermia at an NSICU at an academic, tertiary referral center were retrospectively reviewed. The average temperature before cooling was $38.5^{\circ}\text{C} \pm 0.38^{\circ}\text{C}$ and $38.4^{\circ}\text{C} \pm 0.99^{\circ}\text{C}$ for the Gaymar and Arctic Sun groups, respectively ($p = 0.89$). The Gaymar group took on average 16 ± 21.9 hours to reach goal temperature, whereas the Arctic Sun group took 2.22 ± 1.39 hours ($p = 0.08$). The average time outside of the target temperature was 57.0 ± 58.0 hours in the Gaymar group compared with 13.7 ± 17.1 hours in the Arctic Sun group ($p = 0.04$). Average duration of using the cooling wraps was similar between the two groups; 81.8% of patients had rebound hyperthermia in the Gaymar group compared with 20% in the Arctic Sun group ($p = 0.0089$). The Arctic Sun group had a nonsignificant increased incidence of shivering compared with the Gaymar group (40% vs. 18.18%, $p = 0.36$). We found that Arctic Sun surface cooling device was more efficient in attaining the target temperature, had less incidence of rebound hyperthermia, and was able to maintain normothermia better than Gaymar cooling wraps. The incidence of shivering tended to be more common in the Arctic Sun group.

Continuation of non-essential medications in actively dying hospitalised patients.

Author(s): Williams, Beverly Rosa; Amos Bailey, F; Kvale, Elizabeth; Steil, Neal; Goode, Patricia S; Kennedy, Richard E; Burgio, Kathryn L

Source: BMJ supportive & palliative care; Sep 2017

Publication Type(s): Journal Article

Abstract: OBJECTIVE The objective of this analysis was to examine the use of 11 non-essential medications in actively dying patients. METHOD This was a planned secondary analysis of data from the Best Practices for End-of-Life Care for Our Nation's Veterans trial, a multicentre implementation trial of an intervention to improve processes of end-of-life care in inpatient settings. Supported with an electronic comfort care decision support tool, intervention included training hospital staff to identify actively dying patients, communicate the prognosis to patients/families and implement best practices of traditionally home-based hospice care. Data on medication use before and after

intervention were derived from electronic medical records of 5476 deceased veterans. RESULTS Five non-essential medications, clopidogrel, donepezil, glyburide, metformin and propoxyphene, were ordered in less than 5% of cases. More common were orders for simvastatin (15.8%/15.1%), calcium tablets (8.4%/7.9%), multivitamins (11.6%/10.8%), ferrous sulfate (9.1%/7.6%), diphenhydramine (7.2%/5.1%) and subcutaneous heparin (29.9%/27.5%). Significant decreases were found for donepezil (2.5%/1.3%; $p=0.001$), propoxyphene (0.8%/0.1%; $p=0.001$), metformin (0.8%/0.3%; $p=0.007$) and multivitamins (11.6%/10.8%; $p=0.01$). Orders for one or more non-essential medications were less likely to occur in association with palliative care consultation (adjusted OR (AOR)=0.64, $p<0.001$), do-not-resuscitate orders (AOR=0.66, $p=0.001$) and orders for death rattle medication (AOR=0.35, $p<0.001$). Patients who died in an intensive care unit were more likely to receive a non-essential medication (AOR=1.60, $p=0.009$), as were older patients (AOR=1.12 per 10 years, $p=0.002$). CONCLUSIONS Non-essential medications continue to be administered to actively dying patients. Discontinuation of these medications may be facilitated by interventions that enhance recognition and consideration of patients' actively dying status.

Cardiac Ultrasound Is a Competency of Critical Care Medicine.

Author(s): Millington, Scott J.

Source: Critical Care Medicine; Sep 2017; vol. 45 (no. 9); p. 1555-1557

Publication Type(s): Academic Journal

Available in full text at [Critical Care Medicine](#) - from Ovid

Abstract:The article focuses on the use of bedside cardiac ultrasound (BCU) as a competency of critical care medicine in intensive care units (ICU). Topics discussed include emergence of point-of-care ultrasound as the standard of care in trauma resuscitation and central venous catheter insertion, difference of BCU with echocardiography with response to fluid administration and cardiologist can be called to the cardiac operating room if a transesophageal echocardiogram (TEE).

Acute Kidney Injury and Renal Therapies

Systematic review and meta-analysis of renal replacement therapy modalities for acute kidney injury in the intensive care unit

Author(s): Nash D.M.; O'Reilly D.; Przech S.; Wald R.

Source: Journal of Critical Care; Oct 2017; vol. 41 ; p. 138-144

Publication Type(s): Article

Abstract:Purpose To compare clinical outcomes among critically ill adults with acute kidney injury (AKI) treated with continuous renal replacement therapy (CRRT), intermittent hemodialysis (IHD) or sustained low efficiency dialysis (SLED). Materials and methods We completed a systematic review and meta-analysis of studies published in 2015 or earlier using MEDLINE, EMBASE, Cochrane databases and grey literature. Eligible studies included randomized clinical trials (RCTs) or prospective cohort studies comparing outcomes of mortality, dialysis dependence or length of stay among critically ill adults receiving CRRT, IHD or SLED to treat AKI. Mortality and dialysis dependence from RCTs were pooled using meta-analytic techniques. Length of stay from RCTs and results from prospective cohort studies were described qualitatively. Results Twenty-one studies were eligible. RRT modality was not associated with in-hospital mortality (CRRT vs IHD: RR 1.00 [95% CI, 0.92-1.09], CRRT vs SLED: RR 1.23 [95% CI, 1.00-1.51]) or dialysis dependence (CRRT vs IHD: RR 0.90 [95% CI, 0.59-1.38], CRRT vs SLED: RR 1.15 [95% CI, 0.67-1.99]). Conclusions We did not find a definitive advantage for any RRT modality on short-term patient or kidney survival. Well-designed, adequately-

powered trials are needed to better define the role of RRT modalities for treatment of critically ill patients with AKI. Copyright © 2017 Elsevier Inc.

Risk Factors for Acute Kidney Injury in Patients With Burn Injury: A Meta-Analysis and Systematic Review.

Author(s): Guosheng Wu; Yongqiang Xiao; Chen Wang; Xudong Hong; Yu Sun; Bing Ma;

Source: Journal of Burn Care & Research; Sep 2017; vol. 38 (no. 5); p. 271-282

Publication Type(s): Academic Journal

Abstract: Acute kidney injury (AKI) is a fatal complication of burn injury. Few systematic reviews to date have focused on the risk factors predisposing to AKI in patients with burn injury. The aim of this article is to identify the risk factors for the occurrence of AKI in burn patients, thus providing theoretical evidence for prevention and treatment. We performed a systematic review and meta-analysis of studies determining the prevalence, risk factors, and outcomes of AKI in patients with burn injury. An electronic search (up to April 2016) was performed using Pubmed, Embase, Web of Knowledge, and the Cochrane Library databases. Finally, a total of 18 articles (nine prospective cohort, seven retrospective cohort, two case-control) meeting the eligibility criteria were included. The pooled incidence of AKI was 39.6% (95% confidence interval = 34.7-44.4%). Significant risk factors for the occurrence of AKI included age (odds ratio [OR] = 3.78 [1.28-6.27]), TBSA (OR = 15.66 [11.01-20.31]), full-thickness TBSA (OR = 15.66 [11.01-20.31]), flame burn (OR = 1.56 [1.09-2.25]), inhalation injury (OR = 2.97 [1.80-4.89]), abbreviated burn severity index on admission (OR = 2.42 [1.87-2.98]), sequential organ failure assessment score on admission (OR = 2.69 [1.39-3.98]), baseline blood urea nitrogen (OR = 2.11 [0.72-3.51]), serum creatinine (OR = 2.69 [1.39-3.98]), and sepsis (OR = 4.42 [1.75-11.18]). In addition, burn patients with AKI are more likely to have long stay in intensive care unit and high mortality. AKI is a common complication and occurs at a remarkable rate in burn patients. We identified 10 variables as independent risk factors for the development of AKI in burn patients. Our findings may help clinicians to develop effective preventive and therapeutic strategies and provide appropriate, timely initial treatment.

Contrast-induced acute kidney injury: the importance of diagnostic criteria for establishing prevalence and prognosis in the intensive care unit.

Author(s): Moura, Edmilson Leal Bastos de; Amorim, Fábio Ferreira; Huang, William

Source: Revista Brasileira de terapia intensiva; Sep 2017 ; p. 0

Publication Type(s): Journal Article

Abstract: Objective: To establish whether there is superiority between contrast-induced acute kidney injury and contrast-induced nephropathy criteria as predictors of unfavorable clinical outcomes. Methods: Retrospective study carried out in a tertiary hospital with 157 patients undergoing radiocontrast infusion for propaedeutic purposes. Results: One hundred forty patients fulfilled the inclusion criteria: patients who met the criteria for contrast-induced acute kidney injury (59) also met the criteria for contrast-induced nephropathy (76), 44.3% met the criteria for KDIGO staging, 6.4% of the patients required renal replacement therapy, and 10.7% died. Conclusion: The diagnosis of contrast-induced nephropathy was the most sensitive criterion for renal replacement therapy and death, whereas KDIGO showed the highest specificity; there was no correlation between contrast volume and progression to contrast-induced acute kidney injury, contrast-induced nephropathy, support dialysis or death in the assessed population.

No increase in the incidence of acute kidney injury in a population-based annual temporal trends epidemiology study.

Author(s): Kashani, Kianoush; Shao, Min; Li, Guangxi; Williams, Amy W; Rule, Andrew D; Kremers, Walter K; Malinchoc, Michael; Gajic, Ognjen; Lieske, John C

Source: Kidney international; Sep 2017; vol. 92 (no. 3); p. 721-728

Publication Date: Sep 2017

Publication Type(s): Journal Article

PubMedID: 28528131

Abstract:Recent literature suggests an increase in the incidence of acute kidney injury (AKI). We evaluated population-based trends of AKI over the course of nine years, using a validated electronic health record tool to detect AKI. All adult residents (18 years of age and older) of Olmsted County, Minnesota (MN), admitted to the Mayo Clinic Hospital between 2006 and 2014 were included. The incidence rate of AKI was calculated and temporal trends in the annual AKI incident rates assessed. During the nine-year study period, 10,283, and 41,847 patients were admitted to the intensive care unit or general ward, with 1,740 and 2,811 developing AKI, respectively. The unadjusted incidence rates were 186 and 287 per 100,000 person years in 2006 and reached 179 and 317 per 100,000 person years in 2014. Following adjustment for age and sex, there was no significant change in the annual AKI incidence rate during the study period with a Relative Risk of 0.99 per year (95% confidence interval 0.97-1.01) for intensive care unit patients and 0.993 per year (0.98-1.01) for the general ward patients. Similar results were obtained when the ICD-9 codes or administrative data for dialysis-requiring AKI was utilized to determine incident cases. Thus, despite the current literature that suggests an epidemic of AKI, we found that after adjusting for age and sex the incidence of AKI in the general population remained relatively stable over the last decade.

Hyperchloremic acidosis is associated with acute kidney injury after abdominal surgery.

Author(s): Toyonaga, Yosuke; Kikura, Mutsuhito

Source: Nephrology (Carlton, Vic.); Sep 2017; vol. 22 (no. 9); p. 720-727

Publication Type(s): Journal Article

Abstract:AIMHyperchloremic acidosis may have an important role as a precursor of acute kidney injury (AKI) in the hyperchloremic environment induced by chloride-rich fluids, but this remains unclear. We tested the hypothesis that hyperchloremic acidosis assessed by the Stewart approach is associated with postoperative AKI.METHODSA historical cohort study was conducted in adult patients who had normal renal function preoperatively and required admission to the intensive care unit after elective abdominal surgery. The Risk, Injury, Failure, Loss of kidney function, End stage kidney disease (RIFLE) classification was used for definition of AKI.RESULTSO f 206 patients (144 male, 69.9%) included in the study, 42 (20.4%) had postoperative AKI (AKI group) and 164 (79.6%) did not (non-AKI group). Base excess-chloride (BE-Cl) and strong ion difference (SID, approximated as Na-Cl) decreased, and the chloride level on postoperative day 1 increased compared with preoperative values in both groups ($P < 0.05$). In the AKI group, BE-Cl and SID were lower, and chloride was higher than in the non-AKI group ($P < 0.05$). The intraoperative load of chloride ions in fluids increased the risk of postoperative AKI ($P < 0.01$). In multivariate logistic regression analysis, postoperative BE-Cl < -7 mEq/L (i.e. SID < 31 mEq/L) was an independent risk factor for AKI (odds ratio; 2.8, 95% CI; 1.2-6.4, $P = 0.01$). In the AKI group, stays in the intensive care unit and in hospital were longer than those in the non-AKI group ($P < 0.05$).CONCLUSIONHyperchloremic acidosis is associated with postoperative AKI, and this may be attenuated by reducing the intraoperative chloride load.

Prognostic value of platelet-to-lymphocyte ratios among critically ill patients with acute kidney injury.

Author(s): Zheng, Chen-Fei; Liu, Wen-Yue; Zeng, Fang-Fang; Zheng, Ming-Hua; Shi, Hong-Ying

Source: Critical care (London, England); Sep 2017; vol. 21 (no. 1); p. 238

Publication Type(s): Journal Article

Available in full text at [Critical care: the official journal of the Critical Care Forum \[Crit Care\] NLMUID: 9801902](#) - from EBSCOhost

Abstract:BACKGROUND Inflammation plays an important role in the initiation and progression of acute kidney injury (AKI). However, evidence regarding the prognostic effect of the platelet-to-lymphocyte ratio (PLR), a novel systemic inflammation marker, among patients with AKI is scarce. In this study, we investigated the value of the PLR in predicting the outcomes of critically ill patients with AKI. METHODS Patient data were extracted from the Multiparameter Intelligent Monitoring in Intensive Care Database III version 1.3. PLR cutoff values were determined using smooth curve fitting or quintiles and were used to categorize the subjects into groups. The clinical outcomes were 30-day and 90-day mortality in the intensive care unit (ICU). Cox proportional hazards models were used to evaluate the association between the PLR and survival. RESULTS A total of 10,859 ICU patients with AKI were enrolled. A total of 2277 thirty-day and 3112 ninety-day deaths occurred. A U-shaped relationship was observed between the PLR and both 90-day and 30-day mortality, with the lowest risk being at values ranging from 90 to 311. The adjusted HR (95% CI) values for 90-day mortality given risk values 311 were 1.25 (1.12-1.39) and 1.19 (1.08-1.31), respectively. Similar trends were observed for 30-day mortality or when quintiles were used to group patients according to the PLR. Statistically significant interactions were found between the PLR and both age and heart rate. Younger patients (aged 311 ($P < 0.001$ for age and $P < 0.001$ for heart rate)). CONCLUSION The preoperative PLR was associated in a U-shaped pattern with survival among patients with AKI. The PLR appears to be a novel, independent prognostic marker of outcomes in critically ill patients with AKI.

Renal Failure After Cardiac Operations: Not All Acute Kidney Injury Is the Same.

Author(s): Crawford, Todd C; Magruder, J Trent; Grimm, Joshua C; Lee, Shin-Rong

Source: The Annals of thoracic surgery; Sep 2017; vol. 104 (no. 3); p. 760-766

Publication Type(s): Journal Article

Abstract:BACKGROUND The Society of Thoracic Surgeons (STS) database does not distinguish between a decline in creatinine clearance vs new hemodialysis (HD) when qualifying acute renal failure (ARF) after a cardiac operation. We hypothesized that patients requiring HD experience significantly greater postoperative morbidity and death. METHODS We included all patients who underwent STS index cardiac operations at our institution from 2008 to March 2015 and did not have preexisting renal failure (creatinine >4.0 mg/dL or preoperative HD). We identified patients meeting STS criteria for ARF: threefold rise in serum creatinine, creatinine exceeding 4.0 mg/dL (non-HD ARF) with minimum rise of 0.5 mg/dL, or HD (ARF-HD). After propensity matching non-HD ARF and ARF-HD groups across 14 variables (including baseline glomerular filtration rate), we compared incidences of our primary outcome, death, and secondary outcomes, intensive care unit (ICU) and hospital length of stay (LOS), and discharge to a location other than home. RESULTS Among 4,154 study patients, we identified 113 (2.7%) that experienced new-onset non-HD ARF ($n = 57$) or ARF-HD ($n = 56$) postoperatively. Propensity matching resulted in 51 well-matched pairs who experienced non-HD ARF or ARF-HD (all $p > 0.10$). Patients requiring HD suffered significantly greater operative mortality (67% vs 22%, $p < 0.01$), longer ICU LOS (326 vs 176 hours, $p < 0.01$), and greater postoperative hospital LOS (34 vs 17 days, $p < 0.01$). ARF-HD patients also demonstrated a trend toward higher rates of discharge to a location other than home (71% vs 45%, $p = 0.08$). CONCLUSIONS After cardiac operations, patients who experienced ARF-HD experienced triple the mortality and double the ICU and postoperative hospital LOS compared with patients who experienced non-HD ARF.

Voriconazole-induced periostitis deformans: serial imaging in a patient with ANCA vasculitis.

Author(s): Cormican, S; Adams, N; O'Connell, P; McErlean, A; de Freitas, D

Source: Skeletal radiology; Sep 2017

Publication Type(s): Journal Article

Abstract:OBJECTIVES A 61-year-old with acute granulomatosis and polyangiitis developed *Aspergillus fumigatus* pneumonia after admission to the intensive care unit with a small bowel perforation. This occurred after immunosuppression (intravenous methylprednisolone, intravenous cyclophosphamide, and plasmapheresis) for his initial presentation with stage 3 acute kidney injury. MATERIALS AND METHODS The mycologist recommended long-term treatment with voriconazole after initial recovery. RESULTS After 7 months of treatment, the patient complained of joint pain and swelling in his hands. Radiographs, computed tomography, and single-photon emission computed tomography appearances were consistent with periostitis. A diagnosis of Voriconazole-induced periostitis deformans was made and the voriconazole was stopped. Plasma fluoride level was 278 µg/L (normal range < 50 µg/L). Discontinuation of voriconazole led to clinical improvement. CONCLUSIONS Periostitis deformans due to fluorosis is a rare complication of voriconazole treatment. The imaging in our case is unusually dramatic. We were able to track the evolution of periosteal reactions over serial imaging.

Sofa coagulation score and patient outcomes in severe acute kidney injury: Analysis from the randomized evaluation of normal versus augmented level (RENAL) study

Author(s): Lin J.; Wang Y.; Bellomo R.; Gallagher M.P.; Duan M.L.

Source: Nephrology; Sep 2017; vol. 22 ; p. 51

Publication Type(s): Conference Abstract

Abstract:Aim: To evaluate the prognostic value of SOFA coagulation scores in patients with severe acute kidney injury (AKI) requiring continuous renal replacement therapy (RRT). Background: A decline in platelet count is common in critically ill patients with severe AKI. However, there is relatively little data assessing the association of SOFA coagulation scores and clinical outcomes in severe AKI patients receiving continuous RRT. Methods: We performed a secondary analysis from the Randomised Evaluation of Normal versus Augmented Level of RRT (RENAL) study. The primary endpoint was all-cause mortality at 90 days after randomization. The secondary outcomes were the length of intensive care unit (ICU) and hospital stay. The association between the SOFA coagulation scores and these outcomes were analysed using multivariate Cox model adjusted for baseline variables. Results: Among 1465 patients in the RENAL study, the complete SOFA coagulation score data were available in 1280 patients. Among them, 579 patients had high SOFA coagulation scores (defined as ≥ 1), while 701 patients had normal SOFA coagulation scores (< 1). The univariate analysis showed that high SOFA coagulation scores were associated with higher mortality at day 90 (49% versus 38.5%, $p=0.0002$). There was no significant difference in the length of ICU and hospital stay between these two groups. In multivariate analysis, the association between high SOFA coagulation scores and increased mortality rate at 90 days remained significant. Conclusions: In the RENAL study, an approximately 50% of patients had an increase in SOFA coagulation scores during their ICU admission. High SOFA coagulation scores were associated with increased mortality at 90 days.

Outcome after continuous renal replacement therapy (CRRT) for acute renal failure following cardiac surgery: A six-year single centre experience of 6000 patients

Author(s): Shah S.; Nolan C.; Lowe M.

Source: Acta Anaesthesiologica Scandinavica; Sep 2017; vol. 61 (no. 8); p. 1059

Publication Date: Sep 2017

Publication Type(s): Conference Abstract

Abstract:Background: Acute kidney injury following cardiac surgery is multi-factorial. We aim to review the outcome of patients needing CRRT for renal failure following cardiac surgery. Materials and Methods: We conducted a prospective audit for six years in the Cardiac Surgical Intensive Care Unit, Royal Victoria Hospital, Belfast, UK. We recorded perioperative demographics, reasons for development of renal failure, commencement and duration of CRRT, renal recovery, need for continuing intermittent haemodialysis (IHD) and 30-day mortality. Those continuing on IHD were followed up for 90-days. Results: From February-2008 to March-2014, 6000 adult cardiac surgeries were performed. Of these, 308 patients required CRRT post-operatively. The reasons recorded singly or in-combination were preoperative renal impairment (32.1%), acidosis & rising lactates (28.2%), bleeding requiring high transfusion requirements (15.2%), deteriorating renal profile (17.5%) and overload (3.6%). Of the patients who received CRRT, 158(51.3%) made complete renal recovery, while 67(21.7%) died within 30-days. The remaining 83(26.9%) patients transitioned to IHD of which 29(37.3%) made complete renal recovery and 5(6%) died within 1-month, 43(51.8%) required permanent IHD while further 11(25.6%) died in next 60-days making 90-day mortality of 16(19.3%). Discussion & Conclusion: Firstly, the incidence of requiring CRRT was 5.1%. Secondly, half of them made complete renal recovery within (Table presented) 30-days. Finally, for patients who transitioned from CRRT to IHD, outcome was less good. Our outcomes are similar as in current literature.

Delirium and Sleep Deprivation

Delirium in the ICU: What About the Floor?

Author(s): Cahill, Anthony; Pearcy, Christopher; Agrawal, Vaidehi; Sladek, Phillip; Truitt, Michael S

Source: Journal of trauma nursing : the official journal of the Society of Trauma Nurses; ; vol. 24 (no. 4); p. 242-244

Publication Type(s): Journal Article

Available in full text at [Journal of Trauma Nursing](#) - from EBSCOhost

Abstract:Delirium was first described in the 1800s as acute, fluctuating confusion. Recent studies note an incidence of 15% in adult intensive care unit patients. Here we present the first prospective study to evaluate the incidence and risk factors for delirium in patients admitted to the trauma surgeon (TS) in non-critical care areas (NCCAs). Patients 18 years or older admitted to any TS in the designated NCCA were evaluated and consented for participation over a 3-month period. Participants were screened with the Confusion Assessment Method (CAM) every 12 hr. Those positive for delirium (CAM+) were administered the CAM-Severity. In addition, 69 other previously identified risk factors were evaluated. Over 3 months, 148 patients were evaluated, 12 of whom were CAM+ (8%). Of patients 65 years or older, 21% screened positive for delirium. Age, education level, presence of Foley catheter, respiratory distress, orthopedic operation, and lack of ambulation were risk factors associated with delirium ($p < .05$). Among all TS patients in the NCCA, we found delirium to be present in 8%. Our nurses identified a 21% incidence of delirium in patients 65 years or older. Given this significant incidence, screening at-risk patients in the NCCA should be considered.

Symptom profile as assessed on delirium rating scale-revised-98 of delirium in respiratory intensive care unit: A study from India

Author(s): Sharma A.; Malhotra S.; Grover S.; Jindal S.K.

Source: Lung India; 2017; vol. 34 (no. 5); p. 434-440

Publication Type(s): Article

Available in full text at [Lung India](#) - from ProQuest

Abstract: Aim: This study aimed to evaluate the phenomenology of delirium in patients admitted in a Respiratory Intensive Care Unit (RICU). Methods: Consecutive patients admitted to RICU were screened for delirium using Richmond Agitation-Sedation Scale (RASS), Confusion Assessment Method for ICU (CAM-ICU) assessment tool and those found positive for delirium were evaluated by a psychiatrist to confirm the diagnosis. Those with a diagnosis of delirium as per the psychiatrist were evaluated on Delirium Rating Scale-Revised-98 (DRS-R-98) to study phenomenology. Results: All the 75 patients fulfilled the criteria of 'acute onset of symptoms' and 'presence of an underlying physical disorder' as per the DRS-R-98. Commonly seen symptoms of delirium included disturbances in attention (100%), thought process abnormality (100%), fluctuation in symptoms (97.33%) disturbance in, sleep-wake cycle, language disturbance (94.7%), disorientation (81.33%), and short-term memory impairments (73.33%). No patient had delusions and very few (5.3%) reported perceptual disturbances. According to RASS subtyping, hypoactive delirium was the most common subtype (n = 34; 45.33%), followed by hyperactive subtype (n = 28; 37.33%) and a few patients had mixed subtype of delirium (n = 13; 17.33%). Factor structure of DRS-R-98 symptoms yielded 3 factors (Factor-1: cognitive factor; Factor-2: motoric factor; Factor-3; thought, language, and fluctuation factor). Conclusion: The phenomenology of delirium in ICU patients is similar to non-ICU patients, but hypoactive delirium is the most common subtype. Copyright © 2017 Indian Chest Society Published by Wolters Kluwer - Medknow.

Do sedation and analgesia contribute to long-term cognitive dysfunction in critical care survivors?

Author(s): Fernandez-Gonzalo S.; Turon M.; Lopez-Aguilar J.; Blanch L.; Jodar M.; De Haro C.

Source: Medicina Intensiva; 2017

Publication Type(s): Article In Press

Abstract: Deep sedation during stay in the Intensive Care Unit (ICU) may have deleterious effects upon the clinical and cognitive outcomes of critically ill patients undergoing mechanical ventilation. Over the last decade a vast body of literature has been generated regarding different sedation strategies, with the aim of reducing the levels of sedation in critically ill patients. There has also been a growing interest in acute brain dysfunction, or delirium, in the ICU. However, the effect of sedation during ICU stay upon long-term cognitive deficits in ICU survivors remains unclear. Strategies for reducing sedation levels in the ICU do not seem to be associated with worse cognitive and psychological status among ICU survivors. Sedation strategy and management efforts therefore should seek to secure the best possible state in the mechanically ventilated patient and lower the prevalence of delirium, in order to prevent long-term cognitive alterations. Copyright © 2017 Elsevier Espana, S.L.U. y SEMICYUC.

Implementation of a protocol to control pain, agitation and delirium in the patients admitted to intensive care unit with opioid drug dependency: A feasibility study

Author(s): Fard G.S.; Zand F.; Khalili F.; Masjedi M.; Maghsoodi B.; Nasimi S.; Afshari R.

Source: Biomedical Research (India); 2017; vol. 28 (no. 8); p. 3666-3671

Publication Type(s): Article

Abstract: Background: Pain, Agitation and Delirium (PAD) are common in critically ill patients admitted in Intensive Care Units (ICU) being reported in 15-80% of the patients. Control of agitation and delirium in critically ill patients is somehow different and hard to achieve in patients with drug abuse and opium addiction. Aim: We hypothesized if a protocol could be designed and implemented to concomitantly control Pain, Agitation and Delirium (PAD) and prevent withdrawal signs in this population during ICU admission. Methods: This prospective cross-sectional study. A multidisciplinary team designed the protocol. We included a total number of 30 critically ill patients

during the study period. We included adult patients (>18 years) who were opium dependent and used drugs daily and had uncontrolled behaviors of drug consumption and reportedly had withdrawal symptoms. Methadone was used to prevent withdrawal syndrome and pain was assessed hourly, by Behavioural Pain Scale and controlled by morphine or fentanyl. Level of sedation was also assessed hourly, by Richmond Agitation-Sedation Scale and controlled by midazolam or propofol, according to the protocol. Delirium was checked by Confusion Assessment Method for ICU, once in every working shift. Results: Patients were recruited during an eight months period in 2 mixed medical-surgical ICU's. The protocol was effective to completely prevent the withdrawal syndrome in 24 patients (80%). The average need to methadone was 14.5 +/- 22.2 mg in the patients. The pain, sedation and delirium were evaluated and documented by the staff in 97%, 98% and 56% of situations, respectively. Pain and sedation scores were within acceptable limits in 93% and 98% of occasions, respectively. Delirium occurred in 2 patients during the ICU stay. Copyright © 2017, Scientific Publishers of India. All rights reserved.

Sleep in the Intensive Care Unit in a Model of Family-Centered Care.

Author(s): Owens, Robert L; Huynh, Truong-Giang; Netzer, Giora

Source: AACN advanced critical care; 2017; vol. 28 (no. 2); p. 171-178

Publication Type(s): Journal Article

Abstract:The desire for families to be physically present to support their loved ones in the intensive care unit, and guidelines in favor of this open visitation approach, require that clinicians consider both patient and family sleep. This article reviews the causes of poor sleep for patients and their family members in the intensive care unit as well as the expected changes in cognition and emotion that can result from sleep deprivation. Measures are proposed to improve the intensive care unit environment to promote family sleep. A framework to educate family members and engage them in preservation of their and their loved one's circadian rhythm is also presented. Although further research is needed, the proposed framework has the potential to improve outcomes for patients and their families in the intensive care unit.

Delirium in critically ill patients.

Author(s): Slooter, A J C; Van De Leur, R R; Zaal, I J

Source: Handbook of clinical neurology; 2017; vol. 141 ; p. 449-466

Publication Type(s): Journal Article Review

Abstract:Delirium is common in critically ill patients and associated with increased length of stay in the intensive care unit (ICU) and long-term cognitive impairment. The pathophysiology of delirium has been explained by neuroinflammation, an aberrant stress response, neurotransmitter imbalances, and neuronal network alterations. Delirium develops mostly in vulnerable patients (e.g., elderly and cognitively impaired) in the throes of a critical illness. Delirium is by definition due to an underlying condition and can be identified at ICU admission using prediction models. Treatment of delirium can be improved with frequent monitoring, as early detection and subsequent treatment of the underlying condition can improve outcome. Cautious use or avoidance of benzodiazepines may reduce the likelihood of developing delirium. Nonpharmacologic strategies with early mobilization, reducing causes for sleep deprivation, and reorientation measures may be effective in the prevention of delirium. Antipsychotics are effective in treating hallucinations and agitation, but do not reduce the duration of delirium. Combined pain, agitation, and delirium protocols seem to improve the outcome of critically ill patients and may reduce delirium incidence.

Effect of Family-Patient Communication on the Incidence of Delirium in Hospitalized Patients in Cardiovascular Surgery ICU.

Author(s): Eghbali-Babadi, Maryam; Shokrollahi, Nasrin; Mehrabi, Tayebe

Source: Iranian journal of nursing and midwifery research; 2017; vol. 22 (no. 4); p. 327-331

Publication Type(s): Journal Article

Abstract:BACKGROUND Cardiovascular diseases are the most important causes of morbidity and mortality in the world, and cardiac surgery is one of the treatments that have complication for patients. One of the most important current psychological complications after cardiac surgery is delirium. For its prevention and treatment, considerable attention should be paid to the role of family. This study has been conducted for assessing the effect of the relationship between the family and patient on the incidence of delirium in hospitalized patients in cardiovascular surgery intensive care unit (ICU) of Isfahan Shahid Chamran hospital. MATERIALS AND METHODS This study is a two-group, single-blind (for the questioner) clinical trial that was conducted among 68 patients in the cardiac surgery ICU of Shahid Chamran hospital affiliated to the Isfahan University of Medical Science in 2013. Sampling was convenient sampling, and the patients were allocated to two groups (n = 34 patients) based on random numbers table. The day after the surgery, one of the family members in the intervention group who had received education the day before was allowed to visit the patient in the morning shift. In the control group, patients received routine care. Two groups were assessed for delirium twice a day for a total of three times (two times in the morning and one time in the evening) with use of Richmond Agitation Sedation Scale and Confusion Assessment Method -ICU (CAM - ICU) scale. RESULTS In the intervention group, 41.18% patients were females and 58.82% patients were males, and in the control group, 29.42% patients were females and 70.58% were males. Mean and SD of patients' age in the intervention group was 55.11 (12.11) and in the control group 54.12 (13.11) years. Based on study results, incidence of delirium in the morning after surgery (second day) in intervention group was 11.76%, and in control group it was 23.53%. In the third day, it was 8.83% in intervention group and 20.58% in control group. Chi-square test showed a significant difference in incidence of delirium during the second (P = 0.04) and the third (P = 0.03) days of surgery in the two groups. In the control group, the incidence of delirium in the evening was 32.35%, which was more than that in the morning. Cochran test showed a significant difference in the morning and afternoon shifts in the control group (P = 0.004). CONCLUSION Effective communication between the patient and family, as a nonmedical method, can reduce delirium after cardiac surgery, especially, at the end of the day; nurses should pay more attention to the prevention of delirium.

Quality of sleep in patients undergoing cardiac surgery during the postoperative period in intensive care.

Author(s): Navarro-García, M Á; de Carlos Alegre, V; Martínez-Oroz, A; Irigoyen-Aristorena, M I

Source: Enfermería intensiva; 2017; vol. 28 (no. 3); p. 114-124

Publication Type(s): Journal Article

Abstract:OBJECTIVE To describe the quality of sleep of patients undergoing cardiac surgery during the first two nights following surgery and identify some of the factors conditioning the nightly rest of these patients in the Intensive Care Unit. METHOD Observational descriptive study based on applying the Richards-Campbell Sleep Questionnaire through a consecutive sample of patients undergoing cardiac surgery with Intensive Care Unit admission. Simultaneously, a questionnaire assessing different environmental factors existing in the unit as possible conditioning of the night's rest was applied. The association between consumption of opioid and sleep quality was studied. RESULT Sample of 66 patients with a mean age of 65±11.57 years, of which 73% were men (N=48). The Richards-Campbell sleep questionnaire garnered average scores of 50.33mm (1.st night) and 53.30mm (2.nd night). The main sleep disturbing factors were discomfort with the different devices, 30.91mm and pain, 30.18mm. The problems caused by environmental noise, 27.5mm or through the voices of the professionals, 26.53mm were also elements of nocturnal discomfort. No

statistical association was found between sleep and the distance of the patient with respect to the nursing control area or related to opioid analgesics. **CONCLUSION** The quality of sleep during the first two nights of Intensive Care Unit admission was "regular". The environmental factors that conditioned the night-time rest of patients were discomfort, pain and ambient noise.

Extracorporeal Membrane Oxygenation Management: Techniques to Liberate from Extracorporeal Membrane Oxygenation and Manage Post-Intensive Care Unit Issues

Author(s): Zwischenberger J.B.; Pitcher H.T.

Source: Critical Care Clinics; Oct 2017; vol. 33 (no. 4); p. 843-853

Publication Type(s): Review

Abstract: Extracorporeal membrane oxygenation (ECMO) is a life-saving technique when patients require pulmonary and/or cardiac support for days to weeks for recovery, bridge to decision, or transplantation. Due to complications associated with ECMO, it is best to stay on ECMO as little time as necessary. Foremost is weaning from ECMO, but the post-ECMO period recapitulates the entire field of critical care. Identified issues include (1) potential for systemic inflammatory response syndrome post-decannulation; (2) post-ECMO complications, such as deep vein thrombosis, wounds, renal failure, and stroke; (3) delirium; (4) posttraumatic stress disorder; (5) rehabilitation; and (6) end of life. Copyright © 2017 Elsevier Inc.

Postoperative Delirium in Elderly Patients Undergoing Major Spinal Surgery: Role of Cerebral Oximetry.

Author(s): Soh, Sarah; Shim, Jae-Kwang; Song, Jong-Wook; Kim, Keung-Nyun; Noh, Hyun-Young; Kwak, Young-Lan

Source: Journal of neurosurgical anesthesiology; Oct 2017; vol. 29 (no. 4); p. 426-432

Publication Type(s): Journal Article

Abstract: **BACKGROUND** Perioperative cerebral hypoperfusion/ischemia is a major inciting factor of postoperative delirium, which is coupled with adverse outcome in elderly patients. Cerebral oximetry enables noninvasive assessment of the regional cerebral oxygen saturation (rSO₂). This study aimed to investigate whether perioperative rSO₂ variations were linked to delirium in elderly patients after spinal surgery. **MATERIALS AND METHODS** Postoperative delirium was assessed for 48 hours postsurgery in 109 patients aged over 60 years without a prior history of cerebrovascular or psychiatric diseases by the Confusion Assessment Method for the intensive care unit and the intensive care delirium screening checklist. The rSO₂ values immediately before and throughout surgery were acquired. The preoperative cognitive functions, patient characteristics, and perioperative data were recorded. **RESULTS** During the 48-h postoperative period, 9 patients (8%) exhibited delirium. The patients with delirium showed similar perioperative rSO₂ values as those without, in terms of the median lowest rSO₂ values (55% vs. 56%; P=0.876) and incidence (22%, both) and duration of decline of rSO₂<80% of the baseline values. The serially assessed hemodynamic variables, hematocrit levels, and blood gas analysis variables were also similar between the groups, except for the number of hypotensive events per patient, which was higher in the patients with delirium than in those without (4, interquartile range [IQR] 3 to 6 vs. 2, IQR: 1 to 3; P=0.014). **CONCLUSION** The degree and duration of decrease of the perioperative rSO₂ measurements were not associated with delirium in elderly patients after spinal surgery.

Impact of Intermittent Versus Continuous Infusion of Fentanyl After Rapid Sequence Intubation on Intensive Care Unit Delirium.

Author(s): Wolf, L.; Messina, E.; Wilson, S.S.; Park, L.

Source: Annals of Emergency Medicine; Oct 2017; vol. 70

Intermediate care unit after free flap reconstruction

Author(s): Kuo P.; Rathi V.K.; Sethi R.K.; Puram S.V.; Lin D.T.; Durand M.L.; Deschler D.G.

Source: Otolaryngology - Head and Neck Surgery (United States); Sep 2017; vol. 157 (no. 1)

Publication Type(s): Conference Abstract

Abstract: Objectives: (1) Examine the need for routine intensive care unit (ICU) transfer and mechanical ventilation after head and neck free flap reconstruction. (2) Describe postoperative outcomes for a large cohort of head and neck free flap patients undergoing a standard protocol of immediate extubation and transfer to an intermediate-level care unit. (3) Identify factors that predict the need for ICU transfer. Methods: A total of 294 free flap reconstructions for 285 patients treated between 2011 and 2013 were retrospectively reviewed. Outcomes measures included ICU transfer, ventilator requirement, flap failure, postoperative complications, and length of stay. Predictors of ICU transfer were identified by multivariable logistic regression. Results: Eight of 294 cases (2.7%) required subsequent ICU transfer, with 5 transferred for ventilator support and 3 for cardiac support. The flap failure rate was 14/294 (4.8%). An additional 34 patients (11.6%) returned to the operating room for other reasons, including 18 hematomas and 10 anastomosis revisions. Common complications were hematomas (14.9%), dehiscence (14.6%), delirium (12.9%), and pneumonia (12.2%). Median length of stay was 11 days (mean 13.0, interquartile range 8.5-15 days), and ICU transfer was associated with longer length of stay ($P = .028$). In multivariate analysis, having 4+ comorbidities was a significant predictor of ICU transfer ($P = .038$). Conclusions: Among head and neck free flap patients, routine extubation and transfer to intermediate-level care with specialized ENT nursing was found to be safe with infrequent subsequent ICU transfer and complication rates comparable to historical literature. Limiting ICU transfers in this population may facilitate delivery of value-based health care.

Multicenter assessment of sedation and delirium practices in the intensive care units in Poland - is this common practice in Eastern Europe?

Author(s): Kotfis K.; Zegan-Baranska M.; Zukowski M.; Kusza K.; Kaczmarczyk M.; Ely E.W.

Source: BMC Anesthesiology; Sep 2017; vol. 17 (no. 1)

Publication Type(s): Article

Available in full text at [BMC Anesthesiology](#) - from ProQuest

Abstract: Background: The majority of critically ill patients experience distress during their stay in the Intensive Care Unit (ICU), resulting from systemic illness, multiple interventions and environmental factors. Providing humane care should address concomitant treatment of pain, agitation and delirium. The use of sedation and approaches to ICU delirium should be monitored according to structured guidelines. However, it is unknown to what extent these concepts are followed in Eastern European countries like Poland. The aim of this study was to evaluate sedation and delirium practices in ICUs in Poland, as a representative of the Eastern European block, particularly the implementation of sedation and ICU delirium screening tools, availability of written sedation guidelines, choice of sedation and delirium treatment agents. Methods: A national postal survey was conducted in all Polish ICUs in early 2016. Results: A total of 165 responses out of 436 addressed units were received (37.8%). Out of responding ICUs delirium is monitored in only 11.9% of the units in Poland. Sedation monitoring tool is used in only 46.1% of units. Only 19.4% of ICUs have written protocols for sedation and 32.1% do not practice daily sedation interruption. The most frequently used agents for short-term sedation (24 h). The preferred agents for delirium treatment were haloperidol (77.6%), dexmedetomidine (43.6%) and quetiapine (19.4%). Close to one-third (32.7%) of respondents chose a benzodiazepine (diazepam) for ICU delirium treatment. Non-pharmacological treatment for ICU delirium was reported by only 45% of the respondents. Conclusions: A majority of Polish ICUs do not adhere to international guidelines regarding sedation and delirium practices. There continues to be inadequate use of sedation and delirium monitoring

tools. High usage of benzodiazepines for sedation and ICU delirium treatment reveals persistence of non-evidence-based practice. This study should prompt further assessment of other Eastern Europe countries and help generate a collective response to update these aspects of patient safety and comfort. Copyright © 2017 The Author(s).

Evaluation of early administration of simvastatin in the prevention and treatment of delirium in critically ill patients undergoing mechanical ventilation (MoDUS): a randomised, double-blind, placebo-controlled trial

Author(s): Page V.J.; Zhao X.B.; Casarin A.; Ely E.W.; McDowell C.; Murphy L.; McAuley D.F.

Source: The Lancet Respiratory Medicine; Sep 2017; vol. 5 (no. 9); p. 727-737

Publication Type(s): Article

Abstract: Background Delirium in critically ill patients is associated with poor clinical outcomes. Neuroinflammation might be an important mechanism in the pathogenesis of delirium, and since simvastatin has anti-inflammatory properties it might reduce delirium. We aimed to establish whether early treatment with simvastatin would decrease the time that survivors of critical illness spent in delirium or coma. Methods We undertook this randomised, double-blind, placebo-controlled trial in a general adult intensive care unit (ICU) in Watford General Hospital (Watford, UK). We enrolled critically ill patients (≥ 18 years) needing mechanical ventilation within 72 h of admission. We randomly assigned patients (1:1 ratio) to receive either simvastatin 80 mg or placebo daily for up to a maximum of 28 days, irrespective of coma or delirium status. We assessed delirium using the Confusion Assessment Method for the ICU (CAM-ICU). The primary outcome was number of days alive and was assessed as delirium-free and coma-free in the first 14 days after being randomly allocated to receive treatment or placebo. ICU clinical and research staff and patients were masked to treatment. We did intention-to-treat analyses with no extrapolation. This trial is registered with the International Standard Randomised Controlled Trial Registry, number ISRCTN89079989. Findings Between Feb 1, 2013, and July 29, 2016, 142 patients were randomly assigned to receive simvastatin (n=71) or placebo (n=71), and were included in the final analysis. The mean number of days alive without delirium and without coma at day 14 did not differ significantly between the two groups (5.7 days [SD 5.1] with simvastatin and 6.1 days [5.2] with placebo; mean difference 0.4 days, 95% CI -1.3 to 2.1; p=0.66). The most common adverse event was an elevated creatine kinase concentration to more than ten times the upper limit of normal (eight [11%] in the simvastatin group vs three [4%] in the placebo group p=0.208). No patient had a serious adverse event related to the study drug. Interpretation These results do not support the hypothesis that simvastatin modifies duration of delirium and coma in critically ill patients. Funding National Institute for Health Research. Copyright © 2017 Elsevier Ltd

Risk factors for postoperative delirium in patients undergoing vascular surgery

Author(s): Galyfos G.C.; Sigala F.; Filis K.; Geropapas G.E.; Sianou A.

Source: Journal of Vascular Surgery; Sep 2017; vol. 66 (no. 3); p. 937-946

Publication Type(s): Review

Abstract: Objective Postoperative delirium (PODE) remains a common complication after vascular surgery procedures although the exact pathogenesis remains unclear, mainly because of its multifactorial character. The aim of this systematic review was to evaluate pooled data on potential risk factors for PODE in patients undergoing vascular surgery procedures. Methods A systematic literature review was conducted conforming to established criteria to identify eligible articles published from 1990 to 2016. Eligible studies evaluated potential risk factors for PODE after vascular surgery procedures, using both univariate and multivariate analysis. PODE was defined as a disturbance of consciousness with reduced ability to focus, sustain, or shift attention after vascular surgery procedures and was diagnosed in all studies using well-established criteria. Only risk factors

reported in at least four studies were included in this review. Pooled results were calculated, and further multivariate regression analysis was conducted. Results Overall, nine studies (published from 2003 to 2015) including 2388 patients in total were evaluated (457 with and 1931 without PODE). Patients with PODE were older (73.27 vs 69.87 years; P Copyright © 2017 Society for Vascular Surgery

The ICM research agenda on intensive care unit-acquired weakness

Author(s): Latronico N.; Herridge M.; Hopkins R.O.; Angus D.; Hart N.; Hermans G.; Iwashyna T

Source: Intensive Care Medicine; Sep 2017; vol. 43 (no. 9); p. 1270-1281

Publication Type(s): Article

Abstract:We present areas of uncertainty concerning intensive care unit-acquired weakness (ICUAW) and identify areas for future research. Age, pre-ICU functional and cognitive state, concurrent illness, frailty, and health trajectories impact outcomes and should be assessed to stratify patients. In the ICU, early assessment of limb and diaphragm muscle strength and function using nonvolitional tests may be useful, but comparison with established methods of global and specific muscle strength and physical function and determination of their reliability and normal values would be important to advance these techniques. Serial measurements of limb and respiratory muscle strength, and systematic screening for dysphagia, would be helpful to clarify if and how weakness of these muscle groups is independently associated with outcome. ICUAW, delirium, and sedatives and analgesics may interact with each other, amplifying the effects of each individual factor. Reduced mobility in patients with hypoactive delirium needs investigations into dysfunction of central and peripheral nervous system motor pathways. Interventional nutritional studies should include muscle mass, strength, and physical function as outcomes, and prioritize elucidation of mechanisms. At follow-up, ICU survivors may suffer from prolonged muscle weakness and wasting and other physical impairments, as well as fatigue without demonstrable weakness on examination. Further studies should evaluate the prevalence and severity of fatigue in ICU survivors and define its association with psychiatric disorders, pain, cognitive impairment, and axonal loss. Finally, methodological issues, including accounting for baseline status, handling of missing data, and inclusion of patient-centered outcome measures should be addressed in future studies. Copyright © 2017, Springer-Verlag Berlin Heidelberg and ESICM.

Effect of nicotine replacement therapy on mortality, delirium, and duration of therapy in critically ill smokers: a systematic review and meta-analysis.

Author(s): Ng, K T; Gillies, M; Griffith, D M

Source: Anaesthesia and intensive care; Sep 2017; vol. 45 (no. 5); p. 556-561

Publication Type(s): Journal Article

Available in full text at [Anaesthesia and intensive care \[Anaesth Intensive Care\] NLMUID: 0342017](#) - from EBSCOhost

Abstract:Nicotine replacement therapy is widely used in critically ill smokers and its effect on delirium, mortality and duration of intensive care unit (ICU) admission is unknown. The aims of this review were to determine whether the management of nicotine withdrawal with nicotine replacement therapy reduces delirium, mortality or length of stay in critically ill smokers in ICU. The primary outcome was incidence of author-defined ICU delirium. Secondary outcomes were ICU or hospital mortality, ICU-free days at day 28, and ICU or hospital length of stay. We conducted a systematic review and meta-analysis of the data sources MEDLINE, EMBASE, CINAHL, and the Cochrane Database of Systematic Reviews for randomised controlled trials and observational studies. Clinical trials, observational studies and systematic reviews comparing nicotine replacement therapy with placebo or no treatment were included. Case reports, case series, non-systematic

reviews and studies that involved children were excluded. Eight studies were eligible (n=2,636) for inclusion in the data synthesis. In a meta-analysis of observational studies, nicotine replacement therapy was associated with increased delirium (three studies; n=908; I²=0%; finite element method: odds ratio 4.03 [95% confidence interval 2.64, 6.15]; P=0.10, I²=44%; finite element method: odds ratio 0.58; 95% confidence intervals 0.31-1.10) and hospital mortality or 28-day ICU-free days. In the absence of high-quality data, nicotine replacement therapy cannot currently be recommended for routine use to prevent delirium or to reduce hospital or ICU mortality in critically ill smokers.

Effects of Sleep Quality on Melatonin Levels and Inflammatory Response after Major Abdominal Surgery in an Intensive Care Unit.

Author(s): Yaşar, Necdet Fatih; Badak, Bartu; Canik, Ağgöl; Baş, Sema Şanal; Uslu, Sema; Öner, Setenay; Ateş, Ersin

Source: *Molecules* (Basel, Switzerland); Sep 2017; vol. 22 (no. 9)

Publication Type(s): Journal Article

Abstract: Disruption of nocturnal sleep in an intensive care unit may remarkably affect production of melatonin, which is also known to have anti-inflammatory properties. In the present study, we aimed to investigate the effect of sleep quality on melatonin levels and inflammation after surgery. Thus, we compared the patients, who were screened in the side-rooms where the lights were dimmed and noise levels were reduced, with the patients who received usual care. Preoperative and postoperative urine 6-sulphatoxymelatonin, serum interleukin-1 (IL-1), interleukin-6 (IL-6), and c-reactive protein (CRP) levels were measured and data on sleep quality was collected using the Richards-Campbell Sleep Questionnaire. Postoperative CRP and IL-6 levels were greater in the control group than in the experimental group, whereas postoperative 24 h melatonin levels were greater than preoperative levels and the difference was steeper in the experimental group in concordance with sleep quality scores. Thus, the regulation of light and noise in ICUs may help the recovery after major surgeries in patients, potentially by increasing melatonin production, which has anti-inflammatory properties.

The Evidence Clash Between Statins and Delirium: Should They Stay, Should They Go, or Should They Be Started?

Author(s): Duprey, Matthew S.; Zekery-Saad, Sara A.; Devlin, John W.

Source: *Critical Care Medicine*; Sep 2017; vol. 45 (no. 9); p. 1574-1576

Publication Type(s): Academic Journal

Available in full text at [Critical Care Medicine](#) - from Ovid

Abstract: The article focuses on a cohort study published within the issue of the periodical regarding the impact of statin in intensive care unit (ICU) admission. It mentions statins used for their cholesterol lowering properties and led to their evaluation for acute inflammatory conditions like sepsis and statin administration may help mitigate delirium in the critically ill though a reduction in cerebral inflammation, alterations in microglial activation, and diminished blood-brain barrier injury.

End of Life Care and Treatment Withdrawal

Family Satisfaction With End-of-Life Care in the Intensive Care Unit: A Systematic Review of the Literature.

Author(s): DeSanto-Madeya, Susan; Safizadeh, Parissa

Source: Dimensions of critical care nursing : DCCN; ; vol. 36 (no. 5); p. 278-283

Publication Type(s): Journal Article

Available in full text at [Dimensions of Critical Care Nursing](#) - from EBSCOhost

Abstract:BACKGROUND Assessment of family satisfaction after the death of a loved one in the intensive care unit (ICU) provides a way to determine whether quality end-of-life care was received by the patient and family. The purpose of this systematic review was to explore the factors associated with family satisfaction with end-of-life care in the ICU. METHODS A systematic literature review was conducted using electronic databases CINAHL, MEDLINE, EMBASE, and PsychINFO. Databases were searched using a combination of search terms: "family satisfaction," "end of life," "intensive care unit," and "family." Results were limited to English-language reports of empirical studies published from January 2000 to January 2016. Studies describing adult family members' satisfaction with end-of-life care of patients admitted or transferred to an ICU were included in the review. RESULTS The search yielded 466 articles. Review of the titles and abstracts resulted in 122 articles that underwent full review; 30 articles met study inclusion and were included in the final analysis. Major themes identified from the literature reviewed included communication, decision making, nursing care, ICU environment, and spiritual care. CONCLUSIONS Families can provide valuable insight and information on the quality of care provided in the ICU at end of life. Their perceptions of communication, decision making, nursing care, the ICU environment, and spiritual support strongly influence their satisfaction or dissatisfaction with end-of-life care in the ICU. Personalized and frequent communication; assistance in the decision-making process; compassionate nursing care; a warm, family-friendly environment; and spiritual support can help alleviate the sequelae and enhance family satisfaction with end-of-life care in the ICU.

Creating a Sacred Space in the Intensive Care Unit at the End of Life.

Author(s): Fournier, Ann L

Source: Dimensions of critical care nursing : DCCN; ; vol. 36 (no. 2); p. 110-115

Publication Type(s): Journal Article

Available in full text at [Dimensions of Critical Care Nursing](#) - from EBSCOhost

Abstract: Improving care at the end of life is a health priority. At least one-third of deaths in the United States occur in the hospital; nearly half of the Americans who die in the hospital will have spent time in the intensive care unit during the last 3 days of life. Critically ill patients and their families identify significant unmet spiritual, environmental, and communication needs. Although the Society of Critical Care Medicine recommends that the spiritual needs of critically ill patients be addressed by the health care team and be incorporated in patients' plans of care, spiritual concerns are infrequently addressed during goals-of-care discussions. The American Association of Critical-Care Nurses' Synergy Model recognizes the central importance of spirituality to the provision of patient-centered care. Furthermore, the model highlights the value of the relationship between the patient and the nurse to a healing environment. The privileged connection between patients and nurses, foundational to the creation of a healing environment, may be understood as a sacred space. Critical care nurses are uniquely positioned to improve end-of-life care by focusing on the spiritual, environmental, and communication needs of their patients through the creation of a third space in the intensive care unit, a sacred space.

Critical Care Nurses' Suggestions to Improve End-of-Life Care Obstacles: Minimal Change Over 17 Years.

Author(s): Beckstrand, Renea L; Hadley, Kacie Hart; Luthy, Karlen E; Macintosh, Janelle L B

Source: Dimensions of critical care nursing : DCCN; ; vol. 36 (no. 4); p. 264-270

Publication Type(s): Journal Article

PubMedID: 28570382

Available in full text at [Dimensions of Critical Care Nursing](#) - from EBSCOhost

Abstract:BACKGROUND Critical-care nurses (CCNs) provide end-of-life (EOL) care on a daily basis as 1 in 5 patients dies while in intensive care units. Critical-care nurses overcome many obstacles to perform quality EOL care for dying patients. OBJECTIVE The purposes of this study were to collect CCNs' current suggestions for improving EOL care and determine if EOL care obstacles have changed by comparing results to data gathered in 1998. METHODS A 72-item questionnaire regarding EOL care perceptions was mailed to a national, geographically dispersed, random sample of 2000 members of the American Association of Critical-Care Nurses. One of 3 qualitative questions asked CCNs for suggestions to improve EOL care. Comparative obstacle size (quantitative) data were previously published. RESULTS Of the 509 returned questionnaires, 322 (63.3%) had 385 written suggestions for improving EOL care. Major themes identified were ensuring characteristics of a good death, improving physician communication with patients and families, adjusting nurse-to-patient ratios to 1:1, recognizing and avoiding futile care, increasing EOL education, physicians who are present and "on the same page," not allowing families to override patients' wishes, and the need for more support staff. When compared with data gathered 17 years previously, major themes remained the same but in a few cases changed in order and possible causation. CONCLUSION Critical-care nurses' suggestions were similar to those recommendations from 17 years ago. Although the order of importance changed minimally, the number of similar themes indicated that obstacles to providing EOL care to dying intensive care unit patients continue to exist over time.

Physician Preferences for Aggressive Treatment at the End of Life and Area-Level Health Care Spending: The Johns Hopkins Precursors Study.

Author(s): Gallo, Joseph J; Andersen, Martin S; Hwang, Seungyoung; Meoni, Lucy;

Source: Gerontology & geriatric medicine; 2017; vol. 3 ; p. 2333721417722328

Publication Type(s): Journal Article

Abstract:Objective: To determine whether physician preferences for end-of-life care were associated with variation in health care spending. Method: We studied 737 physicians who completed the life-sustaining treatment questionnaire in 1999 and were linked to end-of-life care data for the years 1999 to 2009 from Medicare-eligible beneficiaries from the Dartmouth Atlas of Health Care (in hospital-related regions [HRRs]). Using latent class analysis to group physician preferences for end-of-life treatment into most, intermediate, and least aggressive categories, we examined how physician preferences were associated with health care spending over a 7-year period. Results: When all HRRs in the nation were arrayed in quartiles by spending, the prevalence of study physicians who preferred aggressive end-of-life care was greater in the highest spending HRRs. The mean area-level intensive care unit charges per patient were estimated to be US\$1,595 higher in the last 6 months of life and US\$657 higher during the hospitalization in which death occurred for physicians who preferred the most aggressive treatment at the end of life, when compared with average spending. Conclusions: Physician preference for aggressive end-of-life care was correlated with area-level spending in the last 6 months of life. Policy measures intended to minimize geographic variation in health care spending should incorporate physician preferences and style.

Improving Health Care Provider Communication in End-of-Life Decision-Making.

Author(s): Wilson, Tracey; Haut, Cathy; Akintade, Bimbola

Source: AACN advanced critical care; 2017; vol. 28 (no. 2); p. 124-132

Publication Type(s): Journal Article

Abstract: Critical care providers are responsible for many aspects of patient care, primarily focusing on preserving life. However, nearly 40% of patients who are admitted to an adult critical care unit

will not survive. Initiating a conversation about end-of-life decision-making is a daunting task. Often, health care providers are not trained, experienced, or comfortable facilitating these conversations. This article describes a quality improvement project that identified current views on end-of-life communication in the intensive care unit and potential barriers that obstruct open discussion, and offering strategies for improvement.

Influence of Age on Decision-Making Process to Limit or Withdraw Life-Sustaining Treatment in the Intensive Care Unit - A Single Center Prospective Observational Study.

Author(s): Ducos, G; Mathe, O; Balardy, L; Lozano, S; Kurrek, M; Ruiz, J; Riu-Poulenc, B; Fourcade, O

Source: The Journal of frailty & aging; 2017; vol. 6 (no. 3); p. 148-153

Publication Type(s): Journal Article

Abstract:BACKGROUNDThe increasing age in the industrialized countries places significant demands on intensive care unit (ICU) resources and this triggers debates about end-of-life care for the elderly.OBJECTIVESWe sought to determine the impact of age on the decision-making process to limit or withdraw life-sustaining treatment (DWLST) in an ICU in France. We hypothesized that there are differences in the decision-making process for young and old patients.DESIGN, SETTING, PARTICIPANTSWe prospectively studied end-of-life decision-making for all consecutive admissions (n=390) to a tertiary care university ICU in Toulouse, France over a period of 11 months between January and October 2011.RESULTSAmong the 390 patients included in the study (age ≥ 70 yo, n=95; age < 70 yo, n=295) DWLST were more common for patients 70 years or older (43% for age ≥ 70 yo vs. 16% for age < 70 yo, $p < 0.0001$). Reasons for DWLST were different in the 2 groups, with the 'no alternative treatment options' and 'severity of illness' as the most frequent reasons cited for the younger group whereas it was 'severity of illness' for the older group. 'Advanced age' led to DWLSTs in 43% of the decisions in the group ≥ 70 yo (vs. 0% in the group < 70 yo, $p < 0.0001$). Multivariate logistic regression showed a high SAPS II score and age ≥ 70 yo as independent risk factors for DWLSTs in the ICU. We did not find age ≥ 70 yo as an independent risk factor for mortality in ICU.CONCLUSIONWe found that age ≥ 70 yo was an independent risk factor for DWLSTs for patients in the ICU, but not for their mortality. Reasons leading to DWLSTs are different according to the age of patients.

Family discussions on life-sustaining interventions in neurocritical care.

Author(s): Adil, M M; Larriviere, D

Source: Handbook of clinical neurology; 2017; vol. 140 ; p. 397-408

Publication Type(s): Journal Article Review

Abstract:Approximately 20% of all deaths in the USA occur in the intensive care unit (ICU) and the majority of ICU deaths involves decision of de-escalation of life-sustaining interventions. Life-sustaining interventions may include intubation and mechanical ventilation, artificial nutrition and hydration, antibiotic treatment, brain surgery, or vasoactive support. Decision making about goals of care can be defined as an end-of-life communication and the decision-making process between a clinician and a patient (or a surrogate decision maker if the patient is incapable) in an institutional setting to establish a plan of care. This process includes deciding whether to use life-sustaining treatments. Therefore, family discussion is a critical element in the decision-making process throughout the patient's stay in the neurocritical care unit. A large part of care in the neurosciences intensive care unit is discussion of proportionality of care. This chapter provides a stepwise approach to hold these conferences and discusses ways to do it effectively.

Venting concerns: A terminal extubation guideline

Author(s): Doverspike L.K.; Schnur M.; Kuhnlein M.; Stein D.; Selvaggi K.

Source: Journal of Palliative Medicine; 2017; vol. 20 (no. 4)

Publication Type(s): Conference Abstract

Abstract: Description: The goal of withdrawing life-sustaining treatments is to discontinue therapies that are no longer desired or no longer providing comfort to patients. If not appropriately treated, patients who die after the withdrawal of mechanical ventilation can experience pain, dyspnea, and other distressing symptoms. Family members witnessing this may experience complicated grief after the patient's death. In August 2015, a Palliative Care program was initiated at Butler Health System (BHS). BHS, located 35 miles north of Pittsburgh, Pennsylvania, is a single hospital system anchored by Butler Memorial Hospital (BMH), a 297 bed community hospital located within a county of 185,000 residents. The Intensive Care Unit (ICU) within BMH is a 24 bed unit that averages 1100 admissions and 110 deaths per year (10%). One of the initial priorities of the palliative care program was integration into the ICU. The ICU team was very interested in collaborating with the new palliative care program to improve care for critically ill patients. A multidisciplinary task force of physicians, nurses, pharmacists, nurse practitioners, physician assistants and social workers was assembled with representation from critical care, ICU nursing, pharmacy, ethics and palliative care. A needs assessment questionnaire was developed and sent electronically to all health care providers in the ICU. Survey results revealed a concern for a lack of consistent approach to end of life care and a desire to improve skills for caring for patients at the end of life. Seventy-five percent of survey respondents ranked issues with communication as a top barrier to a smoother end of life transition for patients who die in the ICU. Respondents identified withdrawal of mechanical ventilation in the dying patient as a process that lacked specific guidelines at our institution and created a high level of angst for ICU health care providers. Based on literature reviews and best practice procedures, a guideline was created that included a step wise process for communication surrounding withdrawal of mechanical ventilation in the dying patient. We developed a standard order set for medications commonly used in this process to control symptoms before and after extubating. This order set was reviewed and approved by the BMH Critical Care, Pharmacy and Therapeutics, and Forms committees. The order set was uploaded for use by all clinicians in the electronic order entry system (Meditech). Video education to all ICU health care providers was provided by representatives from pharmacy and palliative care. A laminated pocket sized guideline for reference was also made available. Palliative care consultation continues to be available to assist with end of life care when requested. We are hopeful that with the use of the electronic order sets, video education, and pocket guides, a more consistent approach for withdrawal of mechanical ventilation will be implemented within the ICU. Our hypothesis is that staff satisfaction and confidence will increase with continued education and support. We will repeat the survey 6 months after implementation and continue ongoing education of newly hired ICU health care providers.

Withdrawal of treatment after devastating brain injury: post-cardiac arrest pathways lead in best practice.

Author(s): Manara, A. R.; Menon, D. K.

Source: Anaesthesia; Oct 2017; vol. 72 (no. 10); p. 1179-1184

Publication Type(s): Academic Journal

Abstract: The author reflects on withdrawal of treatment after devastating brain injury with the cardiopulmonary resuscitation (CPR) for the people suffering an out of hospital cardiac arrest (OHCA). Topics discussed include management of postresuscitation care in a general or cardiothoracic intensive care unit (ICU), brain injury can be defined as any neurological condition that is assessed at the time of hospital admission and end-of-life care, and possibly organ donation.

Healthcare outcomes in undocumented immigrants undergoing two emergency dialysis approaches.

Author(s): Sher, S Jawad; Aftab, Waqas; Moorthi, Ranjani N; Moe, Sharon M; Weaver, Christopher S

Source: Clinical nephrology; Oct 2017; vol. 88 (no. 10); p. 181-192

Publication Type(s): Journal Article

Abstract:BACKGROUND Current estimates suggest 6,500 undocumented end-stage renal disease (ESRD) patients in the United States are ineligible for scheduled hemodialysis and require emergent dialysis. In order to remain in compliance with Emergency Medicaid, an academic health center altered its emergency dialysis criteria from those emphasizing interdialytic interval to a set emphasizing numerical thresholds. We report the impact of this administrative change on the biochemical parameters, utilization, and adverse outcomes in an undocumented patient cohort. METHODS This retrospective case series examines 19 undocumented ESRD patients during a 6-month transition divided into three 2-month periods (P1, P2, P3). In P1, patients received emergent dialysis based on interdialytic interval and clinical judgment. In P2 (early transition) and P3 (equilibrium), patients were dialyzed according to strict numerical criteria coupled with clinical judgment. RESULTS Emergent criteria-based dialysis (P2 and P3) was associated with increased potassium, blood urea nitrogen (BUN), and acidosis as compared to P1 ($p < 0.05$). Overnight hospitalizations were more common in P2 and P3 ($p < 0.05$). More frequent adverse events were noted in P2 as compared to P1 and P3, with an odds ratio (OR) for the composite endpoint (intubation, bacteremia, myocardial infarction, intensive care unit admission) of 48 (5.9 - 391.2) and 16.5 (2.5 - 108.6), respectively. Per-patient reimbursement-to-cost ratios increased during criteria-based dialysis periods (P1: 1.49, P2: 2.3, P3: 2.49). DISCUSSION Strict adherence to criteria-based dialysis models increases biochemical abnormalities while improving Medicaid reimbursement for undocumented immigrants. Alternatives to emergent dialysis are required which minimize cost, while maintaining dignity, safety, and quality of life. .

Improving Care at the End of Life: Creating Hospice in Place.

Author(s): Hartjes, Tonja M.

Source: Critical Care Nurse; Oct 2017; vol. 37 (no. 5); p. 93-96

Publication Type(s): Academic Journal

Available in full text at [Critical Care Nurse](#) - from EBSCOhost

Abstract:The article looks at the problem of neurologic intensive care unit staff at the University of Florida Health Shands Hospital with regards to delivering high-quality palliative, hospice, and bereavement care to patients and families. Topics mentioned include the Care and Communication Bundle, development of a hospice-in-place program, and the challenge of forming a process in the electronic health record to allow the transition of care to hospice.

Intensive care bereavement practices across New Zealand and Australian intensive care units: a qualitative content analysis.

Author(s): Coombs, Maureen; Mitchell, Marion; James, Stephen; Wetzig, Krista

Source: Journal of Clinical Nursing; Oct 2017; vol. 26 (no. 19/20); p. 2944-2952

Publication Type(s): Academic Journal

Abstract:Background End-of-life and bereavement care is an important consideration in intensive care. This study describes the type of bereavement care provided in intensive care units across Australia and New Zealand. Design Inductive qualitative content analysis was conducted on free-text responses to a web-based survey exploring unit-based bereavement practice distributed to nurse managers in 229 intensive care units in New Zealand and Australia. Results A total of 153 (67%) surveys were returned with 68 respondents making free-text responses. Respondents were mainly Australian ($n = 54, 85.3\%$), from the public sector ($n = 51, 75\%$) and holding Nurse Unit

Managers/Charge Nurse roles (n = 39, 52.9%). From the 124 free-text responses, a total of 187 individual codes were identified focussing on bereavement care practices (n = 145, 77.5%), educational provision to support staff (n = 15, 8%) and organisational challenges (n = 27, 14.4%). Bereavement care practices described use of memory boxes, cultural specificity, annual memorial services and use of community support services. Educational provision identified local in-service programmes, and national bereavement courses for specialist bereavement nurse coordinators. Organisational challenges focussed on lack of funding, especially for provision of bereavement follow-up. Conclusions This is the first Australasian-wide survey, and one of the few international studies, describing bereavement practices within intensive care, an important aspect of nursing practice. However, with funding for new bereavement services and education for staff lacking, there are continued challenges in developing bereavement care. Given knowledge about the impact of these areas of care on bereaved family members, this requires review. Relevance to clinical practice Nurses remain committed to supporting bereaved families during and following death in intensive care. With limited resource to support bereavement care, intensive care nurses undertake a range of bereavement care practices at time of death, and after death through family bereavement follow-up.

Transitions to End-of-Life Care for Patients With Chronic Critical Illness: A Meta-Synthesis.

Author(s): Leung, Doris; Angus, Jan E.; Sinuff, Tasnim; Bavly, Sherri; Rose, Louise

Source: American Journal of Hospice & Palliative Medicine; Sep 2017; vol. 34 (no. 8); p. 729-736

Publication Type(s): Academic Journal

Abstract:Background: Adults with chronic critical illness (CCI) frequently experience a terminal trajectory but receive varying degrees of palliation and end-of-life care (EOLC) in intensive care units (ICUs). Why palliation (over curative treatment) is not augmented earlier for patients with CCI in ICU is not well understood. Purpose: To identify the social structures that contribute to timely, context-dependent decisions for transition from acute care to EOLC for patients with CCI and their families. Methods: We conducted a meta-synthesis of qualitative and/or mixed-method studies that recruited adults with CCI, their families or close friends, and/or health-care providers (HCPs) in an ICU environment. Results: Five studies reported data from 83 patients, 109 family members, and 57 HCPs across 5 institutions in Canada and the United States. Overall, we found that morally ambiguous social expectations of treatment tended to lock in HCPs to focus on prescriptive work of preserving life, despite pathways that could "open" access to augmenting palliation and EOLC. This process limited space for families' reflexivity and reappraisal of CCI as a phase liminal to active dying. Notably, EOLC mechanisms were informal and less visible. Conclusion: The management of dying is one of the central tenets of ICU care. Our findings suggest that patients and families need help in negotiating meanings of this situation and in using mechanisms that allow reappraisal and permit understanding of CCI as a phase liminal to dying. Moreover, these mechanisms may paradoxically reduce the ambiguity of patients' future, allowing them to live more fully in the present.

Home to die from the intensive care unit: A qualitative descriptive study of the family's experience.

Author(s): Hutchinson, Amy L; Van Wissen, Kim A

Source: Intensive & critical care nursing; Sep 2017

Publication Type(s): Journal Article

Abstract:BACKGROUND Many people would choose to die at home, and this can be an option for intensive care patients. However, there is limited exploration of the impact on the family. AIM To gain insight into family members' experiences when an adult intensive care unit patient is taken home to die. METHODS Methodology is qualitative description, utilising purposeful sampling, unstructured interviews and thematic analysis. Four participants, from two different families were interviewed.

The setting was a tertiary level Intensive Care Unit in New Zealand. FINDINGS The experience was described as a kaleidoscope of events with two main themes: 'value' family member's found in the patient going home, and their experience of the 'process'. 'Value' subthemes: going home being the patient's own decision, home as an end-of-life environment, and the patient's positive response to being at home. 'Process' subthemes: care and support received, stress of a family member being in intensive care, feeling that everything happened quickly, and concerns and uncertainties. CONCLUSION Going home to die from the intensive care unit can be a positive but challenging experience for the family. Full collaboration between the patient, family and staff is essential, to ensure the family are appropriately supported.

End-of-life practice patterns at U.S. adult cystic fibrosis care centers: A national retrospective chart review.

Author(s): Chen, Elaine; Homa, Karen; Goggin, Jessica; Sadosky, Kathryn A; Hempstead, Sarah

Source: Journal of cystic fibrosis : official journal of the European Cystic Fibrosis Society; Sep 2017

Publication Type(s): Journal Article

Abstract: BACKGROUND There are many challenges to providing end-of-life care (EOLC) to people with cystic fibrosis (CF). METHODS Chart abstraction was used to examine EOLC in adults with CF who died between 2011 and 2013. RESULTS We reviewed 248 deaths from 71 CF care centers. Median age at death was 29 years (range 18-73). While median FEV1 was in the severe lung disease category (FEV1 < 40%), 38% had mild or moderate lung disease in the year preceding death. The most common location of death was the intensive care unit (ICU, 39%), and 12% of decedents were listed for lung transplant. Fewer of those dying in the ICU personally participated in advance care planning or utilized hospice or Palliative Care Services (p < 0.05). CONCLUSIONS Adults dying with CF in the United States most commonly die in an ICU, with limited and variable use of hospice and Palliative Care Services. Palliative care and advance care planning are recommended as a routine part of CF care.

Continuation of non-essential medications in actively dying hospitalised patients.

Author(s): Williams, Beverly Rosa; Amos Bailey, F; Kvale, Elizabeth; Steil, Neal; Goode, Patricia S; Kennedy, Richard E; Burgio, Kathryn L

Source: BMJ supportive & palliative care; Sep 2017

Publication Type(s): Journal Article

PubMedID: 28904011

Abstract: OBJECTIVE The objective of this analysis was to examine the use of 11 non-essential medications in actively dying patients. METHODS This was a planned secondary analysis of data from the Best Practices for End-of-Life Care for Our Nation's Veterans trial, a multicentre implementation trial of an intervention to improve processes of end-of-life care in inpatient settings. Supported with an electronic comfort care decision support tool, intervention included training hospital staff to identify actively dying patients, communicate the prognosis to patients/families and implement best practices of traditionally home-based hospice care. Data on medication use before and after intervention were derived from electronic medical records of 5476 deceased veterans. RESULTS Five non-essential medications, clopidogrel, donepezil, glyburide, metformin and propoxyphene, were ordered in less than 5% of cases. More common were orders for simvastatin (15.8%/15.1%), calcium tablets (8.4%/7.9%), multivitamins (11.6%/10.8%), ferrous sulfate (9.1%/7.6%), diphenhydramine (7.2%/5.1%) and subcutaneous heparin (29.9%/27.5%). Significant decreases were found for donepezil (2.5%/1.3%; p = 0.001), propoxyphene (0.8%/0.1%; p = 0.001), metformin (0.8%/0.3%; p = 0.007) and multivitamins (11.6%/10.8%; p = 0.01). Orders for one or more non-essential medications were less likely to occur in association with palliative care consultation (adjusted OR (AOR) = 0.64, p < 0.001), do-not-resuscitate orders (AOR = 0.66, p = 0.001) and orders for death rattle

medication (AOR=0.35, $p<0.001$). Patients who died in an intensive care unit were more likely to receive a non-essential medication (AOR=1.60, $p=0.009$), as were older patients (AOR=1.12 per 10 years, $p=0.002$). CONCLUSIONS Non-essential medications continue to be administered to actively dying patients. Discontinuation of these medications may be facilitated by interventions that enhance recognition and consideration of patients' actively dying status.

Improving communication with families in the intensive care unit.

Author(s): Briggs, Deborah

Source: Nursing Standard; Sep 2017; vol. 32 (no. 2); p. 41-48

Publication Date: Sep 2017

Publication Type(s): Academic Journal

Abstract: Families ('family' will be used in this article to refer to anyone the patient considers significant, whether they are an actual family member or not) of patients who are critically ill have heightened communication needs. Nurses are an important source of information, particularly about day-to-day patient events and progress. Intensive care unit (ICU) nurses are valued by families because they provide clear, jargon-free information about the patient and their condition. However, they have sometimes been criticised for focusing on short-term issues while avoiding potentially difficult conversations about long-term outcomes and prognosis. A family conference or meeting is held when bad news has to be communicated to families, prognosis discussed or major decisions made, particularly about treatment withdrawal or resuscitation. These meetings should involve physicians and ICU nurses. Despite family conferences, family members' understanding of patient prognosis, diagnosis and treatment is often suboptimal. A planned and structured approach for these meetings, using quantitative statements for prognostic information, recording and communicating what has been said, and supporting meetings with written information, can improve their effectiveness. These supportive strategies increase understanding and consensus, and prevent the provision of conflicting information. It is important for nurses to be willing to follow up these meetings by supporting families to clarify their understanding and encouraging them to raise concerns and ask questions.

REHABILITATION

Impact of Rehabilitation Therapy on Mortality in Patients With Dengue in Intensive Care Units.

Author(s): Cheng, Hsin-Han; Chen, Chin-Ming; Chou, Willy

Source: Archives of Physical Medicine & Rehabilitation; Oct 2017; vol. 98 (no. 10)

Publication Type(s): Academic Journal

Extracorporeal Membrane Oxygenation Management: Techniques to Liberate from Extracorporeal Membrane Oxygenation and Manage Post-Intensive Care Unit Issues.

Author(s): Zwischenberger, Joseph B; Pitcher, Harrison T

Source: Critical care clinics; Oct 2017; vol. 33 (no. 4); p. 843-853

Publication Type(s): Journal Article Review

Abstract: Extracorporeal membrane oxygenation (ECMO) is a life-saving technique when patients require pulmonary and/or cardiac support for days to weeks for recovery, bridge to decision, or transplantation. Due to complications associated with ECMO, it is best to stay on ECMO as little time as necessary. Foremost is weaning from ECMO, but the post-ECMO period recapitulates the entire field of critical care. Identified issues include (1) potential for systemic inflammatory response

syndrome post-decannulation; (2) post-ECMO complications, such as deep vein thrombosis, wounds, renal failure, and stroke; (3) delirium; (4) posttraumatic stress disorder; (5) rehabilitation; and (6) end of life.

Can Early Rehabilitation on the General Ward After an Intensive Care Unit Stay Reduce Hospital Length of Stay in Survivors of Critical Illness? A Randomized Controlled Trial.

Author(s): Gruther, Wolfgang; Pieber, Karin; Steiner, Irene; Hein, Cornelia; Hiesmayr, Jörg Michael; Paternostro-Sluga, Tatjana

Source: American Journal of Physical Medicine & Rehabilitation; Sep 2017; vol. 36 (no. 5); p. 607-615

Publication Type(s): Academic Journal

Abstract:Objective: The aim of this study was to evaluate if an early rehabilitation program for survivors of critical illness improves functional recovery, reduces length of stay, and reduces hospital costs. Design: This was a prospective randomized controlled trial. Fifty-three consecutive survivors of critical illness were included in the study. After discharge from the intensive care unit, the intervention group received an early rehabilitation program, and the standard-care group received physical therapy as ordered by the primary care team. Length of stay at the general ward after transfer from the intensive care unit was recorded. In addition, Early Rehabilitation Barthel Index, visual analog scale for pain, 3-minute walk test, Beck Depression Inventory, State-Trait Anxiety inventory, and Medical Research Council scale were used. Results: In the per-protocol analysis, length of stay at the general ward was a median 14 days (interquartile range [IQR], 12-20 days) in the early rehabilitation and 21 days [IQR, 13-34 days] in the standard-care group. This significant result could not be confirmed by the intention-to-treat analysis (16 days [IQR, 13-23 days] vs. 21 days [IQR, 13-34 days]). Secondary outcomes were similar between the groups. Hospital costs were lower in the intervention group. No adverse effects were detected. Conclusions: An early rehabilitation program in survivors of critical illness led to an earlier discharge from the hospital, improved functional recovery, and was also cost-effective and safe.

Knowledge, attitude and practice of intensive care unit nurses about physical restraint.

Author(s): Suliman, Mohammad; Aloush, Sami; Al-Awamreh, Khitam

Source: Nursing in Critical Care; Sep 2017; vol. 22 (no. 5); p. 264-269

Publication Type(s): Academic Journal

Abstract:ABSTRACT Background Physical restraint is mainly used in intensive care units (ICUs) to prevent delirious or agitated patients from removing tubes and lines connected to them. However, inappropriate use of physical restraint could have many detrimental physical effects on the patient, such as nerve damage, asphyxiation or even death. Aim The aim of the study is to investigate nurses' knowledge, attitude and practice of physical restraint in ICUs in Jordanian hospitals, about which little is known. Design A descriptive and cross-sectional design was used. Methods A convenience sample of 400 nurses working in three public hospitals and one university-affiliated hospital from different geographical regions in Jordan was selected. An Arabic version of the Physical Restraint Questionnaire (PRQ) was used to collect the data. Results A total of 300 completed questionnaires were returned, with a response rate of 75%. Of the total sample, 51% were males, 65.7% were from public hospitals and 80.3% held a bachelor's degree. The mean score in the knowledge section was 9.7 (SD = 1.7) out of 15; in the attitude section, it was 24.7 (SD = 4.8) out of 33; and in the practice section, it was 30.9 (SD = 3.5) out of 42. Nurses who reported previous related education scored higher on the knowledge section (mean = 10.7; SD = 1.4) than nurses who reported no previous related education (mean = 9.1; SD = 1.6; $p < .001$). However, no significant differences between these categories were found in relation to attitude and practice. Conclusions The study demonstrated some lack of knowledge and unsafe practices regarding physical restraint in ICUs in Jordan. It suggests improving nurses' knowledge, attitude and practices through in-service education

on best practice for physical restraint, developing policies/guidelines and providing adequate staff and equipment to maintain patient safety and prevent complications. Relevance to clinical practice
Conducting education programmes on physical restraint for ICU nurses and providing other preventive strategies are important in improving nurses' knowledge, attitude and practice.

Clinical research in critical care. Difficulties and perspectives.

Author(s): Latour-Pérez, J

Source: Medicina intensiva; Sep 2017

Publication Type(s): Journal Article

Abstract:In the field of Intensive Care Medicine, improved survival has resulted from better patient care, the early detection of clinical deterioration, and the prevention of iatrogenic complications, while research on new treatments has been followed by an overwhelming number of disappointments. The origins of these fiascos must be sought in the conjunction of methodological problems - common to other disciplines - and the particularities of critically ill patients. The present article discusses both aspects and suggests some options for progress.

Lipids in the intensive care unit: Recommendations from the ESPEN Expert Group.

Author(s): Calder, Philip C; Adolph, Michael; Deutz, Nicolaas E; Grau, Teodoro; Innes, Jacqueline K

Source: Clinical nutrition (Edinburgh, Scotland); Sep 2017

Publication Type(s): Journal Article Review

Abstract:This article summarizes the presentations given at an ESPEN Workshop on "Lipids in the ICU" held in Tel Aviv, Israel in November 2014 and subsequent discussions and updates. Lipids are an important component of enteral and parenteral nutrition support and provide essential fatty acids, a concentrated source of calories and building blocks for cell membranes. Whilst linoleic acid-rich vegetable oil-based enteral and parenteral nutrition is still widely used, newer lipid components such as medium-chain triglycerides and olive oil are safe and well tolerated. Fish oil (FO)-enriched enteral and parenteral nutrition appears to be well tolerated and confers additional clinical benefits, particularly in surgical patients, due to its anti-inflammatory and immune-modulating effects. Whilst the evidence base is not conclusive, there appears to be a potential for FO-enriched nutrition, particularly administered peri-operatively, to reduce the rate of complications and intensive care unit (ICU) and hospital stay in surgical ICU patients. The evidence for FO-enriched nutrition in non-surgical ICU patients is less clear regarding its clinical benefits and additional, well-designed large-scale clinical trials need to be conducted in this area. The ESPEN Expert Group supports the use of olive oil and FO in nutrition support in surgical and non-surgical ICU patients but considers that further research is required to provide a more robust evidence base.

Severe acquired subglottic stenosis in neonatal intensive care graduates: a case-control study.

Author(s): Thomas, Rebecca E; Rao, Shripada C; Minutillo, Corrado; Vijayasekaran, Shyan

Source: Archives of disease in childhood. Fetal and neonatal edition; Sep 2017

Publication Type(s): Journal Article

Available in full text at [Fetal and Neonatal](#) - from Highwire Press

Abstract:OBJECTIVETo analyse current incidence and risk factors associated with severe acquired subglottic stenosis (SASGS) requiring surgical intervention in neonates.DESIGNRetrospective case-control study.SETTINGSole tertiary children's hospital.PARTICIPANTSPatients who underwent surgical intervention for SASGS from January 2006 to December 2014. For each neonatal intensive care unit (NICU) graduate with acquired SASGS, two controls were selected (matched for gestation

and year of birth).MAIN OUTCOMES AND MEASURESIncidences were calculated and cases and controls compared using conditional logistic regression analysis to identify risk factors for SASGS.RESULTSThirty-seven NICU graduates required surgical intervention for SASGS of whom 35 were 0.1 (adjusted OR (aOR) 6.40; 95% CI 1.65 to 24.77); more than five previous intubations (aOR 3.74; 95% CI 1.15 to 12.19); traumatic intubation (aOR 3.37; 95% CI 1.01 to 11.26).CONCLUSIONSSASGS is a serious consequence of intubation for mechanical ventilation in NICU graduates, especially in preterm infants. Minimising trauma during intubations, avoiding recurrent extubation/reintubations and using appropriate sized ETTs may help prevent this serious complication.

Are we ever too old?: Characteristics and outcome of octogenarians admitted to a medical intensive care unit.

Author(s): Muessig, Johanna Maria; Masyuk, Maryna; Nia, Amir Movahed; Franz, Marcus

Source: Medicine; Sep 2017; vol. 96 (no. 37); p. e7776

Publication Type(s): Journal Article Observational Study

Abstract:The aging population increases the demand of intensive care unit (ICU) treatments. However, the availability of ICU beds is limited. Thus, ICU admission of octogenarians is considered controversial. The population above 80 years is a very heterogeneous group though, and age alone might not be the best predictor. Aim of this study was to analyze resource consumption and outcome of octogenarians admitted to a medical ICU to identify reliable survival predictors in a senescent society.This retrospective observational study analyzes 930 octogenarians and 5732 younger patients admitted to a medical ICU. Admission diagnosis, APACHE II and SAPS II scores, use of ICU resources, and mortality were recorded. Long-term mortality was analyzed using Kaplan-Meier survival curves and multivariate cox regression analysis.Patients ≥ 80 years old had higher SAPS II (43 vs 38, $P < .001$) and APACHE II (23 vs 21, $P = .001$) scores. Consumption of ICU resources by octogenarians was lower in terms of length of stay, mechanical ventilation, and renal replacement therapy. Among octogenarians, ICU survivors got less mechanical ventilation or renal replacement therapy than nonsurvivors. Intra-ICU mortality in the very old was higher (19% vs 12%, $P < .001$) and long-term survival was lower (HR 1.76, $P < .001$). Multivariate cox regression analysis of octogenarians revealed that admission diagnosis of myocardial infarction (HR 1.713, $P = .023$), age (1.08, $P = .002$), and SAPS II score (HR 1.02, 95%, $P = .01$) were independent risk factors, whereas admission diagnoses monitoring post coronary intervention (HR .253, $P = .002$) and cardiac arrhythmia (HR .534, $P = .032$) had a substantially reduced mortality risk.Octogenarians show a higher intra-ICU and long-term mortality than younger patients. Still, they show a considerable life expectancy after ICU admission even though they get less invasive care than younger patients. Furthermore, some admission diagnoses like myocardial infarction, cardiac arrhythmia and monitoring post cardiac intervention are much stronger predictors for long-term survival than age or SAPS II score in the very old.

Bundle of care for blunt chest trauma patients improves analgesia but increases rates of intensive care unit admission: a retrospective case-control study.

Author(s): Carrie, Cédric; Stecken, Laurent; Cayrol, Elsa; Cottenceau, Vincent; Petit, Laurent

Source: Anaesthesia, critical care & pain medicine; Sep 2017

Publication Type(s): Journal Article

Abstract:INTRODUCTIONThis single-centre retrospective case-control study aimed to assess the effectiveness of a multidisciplinary clinical pathway for blunt chest trauma patients admitted in emergency department (ED).PATIENTS AND METHODSAll consecutive blunt chest trauma patients with more than 3 rib fractures and no indication of mechanical ventilation were compared to a retrospective cohort over two 24-month periods, before and after the introduction of the bundle of

care. Improvement of analgesia was the main outcome investigated in this study. The secondary outcomes were the occurrence of secondary respiratory complications (pneumonia, indication for mechanical ventilation, secondary ICU admission for respiratory failure or death), the intensive care unit (ICU) and hospital length of stay (LOS).RESULTS69 pairs of patients were matched using a 1:1 nearest neighbour algorithm adjusted on age and indices of severity. Between the two periods, there was a significant reduction of the rate of uncontrolled analgesia (55 vs. 17%, $p < 0.001$). A significant increase in the rate of primary ICU transfer during the post-protocol period (23 vs. 52%, $p < 0.001$) was not associated with a reduction of secondary respiratory complications or a reduction of ICU or hospital LOS. Only the use of non-steroidal anti-inflammatory drugs appeared to be associated with a significant reduction of secondary respiratory complications (OR = 0.3 [0.1 - 0.9], $p = 0.03$).CONCLUSIONImplementation of a multidisciplinary clinical pathway significantly improves pain control after ED management, but increases the rate of primary ICU admission without significant reduction of secondary respiratory complications.

Follow-up after intensive care treatment: a questionnaire survey of intensive care aftercare in Denmark.

Author(s): Kjer, C K W; Estrup, S; Poulsen, L M; Mathiesen, O

Source: Acta anaesthesiologica Scandinavica; Sep 2017; vol. 61 (no. 8); p. 925-934

Publication Type(s): Journal Article

PubMedID: 28685809

Abstract:BACKGROUNDRehabilitation efforts after treatment in the intensive care unit (ICU) are termed intensive care aftercare. It includes both early in-hospital follow-up after ICU-discharge and late follow-up after hospital discharge. This study aims to investigate the current ICU-aftercare activities in Denmark.METHODSWe conducted an electronic questionnaire survey, which was distributed by e-mail to the heads of all 31 general ICUs in Denmark. Specialized ICUs were not included. The questionnaire was divided into the following sections: early ICU-aftercare, late ICU-aftercare, future development and demographics.RESULTSThirty-one ICUs were invited to participate. The response rate was 100%. Overall, 26 of 31 ICUs (84%) offered ICU-aftercare, with the following distribution: early ICU-aftercare (58%), late ICU-aftercare (57%) and both (29%). There were no significant associations between hospital size and provision of ICU-aftercare. For early ICU-aftercare, the most common eligibility criteria were based on ICU length of stay (LOS) (44%) and a decision based upon doctors' discretion (22%). Incidence of guidelines for early ICU-aftercare (44%) and checklists at patient contact (35%) were sparse. The most common early ICU-aftercare items were as follows: respiratory care (82%), tracheostomy care (59%) and nutritional care (59%). For late ICU-aftercare, the most common eligibility criterion was LOS (41%). Guidelines (71%), but not checklist at patient contact (35%), were more common. Most frequent late ICU-aftercare interventions were review of ICU-diaries (59%) and patient charts (53%).CONCLUSIONEighty-four per cent of Danish ICUs offered ICU-aftercare to their patients. There was an abundant heterogeneity of eligibility criteria and ICU-aftercare interventions.

Intensive Early Rehabilitation in the Intensive Care Unit for Liver Transplant Recipients: A Randomized Controlled Trial.

Author(s): Maffei, Pierre; Wiramus, Sandrine; Bensoussan, Laurent; Bienvenu, Laurence

Source: Archives of Physical Medicine & Rehabilitation; Aug 2017; vol. 98 (no. 8); p. 1518-1525

Publication Type(s): Academic Journal

Abstract:Objective To validate the feasibility and tolerance of an intensive rehabilitation protocol initiated during the postoperative period in an intensive care unit (ICU) in liver transplant recipients. Design Prospective randomized study. Setting ICU. Participants Liver transplant recipients over a

period of 1 year (N=40). Interventions The "usual treatment group" (n=20), which benefited from the usual treatment applied in the ICU (based on physician prescription for the physiotherapist, with one session a day), and the experimental group (n=20), which followed a protocol of early and intensive rehabilitation (based on a written protocol validated by physicians and an evaluation by physiotherapist, with 2 sessions a day), were compared. Main Outcome Measures Our primary aims were tolerance, assessed from the number of adverse events during rehabilitation sessions, and feasibility, assessed from the number of sessions discontinued. Results The results revealed a small percentage of adverse events (1.5% in the usual treatment group vs 1.06% in the experimental group) that were considered to be of low intensity. Patients in the experimental group sat on the edge of their beds sooner (2.6 vs 9.7d; P =.048) and their intestinal transit resumed earlier (5.6 vs 3.7d; P =.015) than patients in the usual treatment group. There was no significant difference between the 2 arms regarding length of stay (LOS), despite a decrease in duration in the experimental group. Conclusions The introduction of an intensive early rehabilitation program for liver transplant recipients was well tolerated and feasible in the ICU. We noted that the different activities proposed were introduced sooner in the experimental group. Moreover, there is a tendency to decreased LOS in the ICU for the experimental group. These results now need to be confirmed by studies on a larger scale.

Intensive Care Nurses' Views and Practices for Eye Care: An International Comparison.

Author(s): Güler, Elem Kocaçal; Eşer, İsmet; Fashafsheh, Imad Hussein Deeb

Source: Clinical Nursing Research; Aug 2017; vol. 26 (no. 4); p. 504-524

Publication Type(s): Academic Journal

Abstract: Eye care is an important area of critical care. However, lack of eye care studies is a common issue across the globe. The aim of this study is to determine the views and practices of intensive care unit (ICU) nurses on eye care in Turkey and Palestine. This descriptive study was conducted using a self-administrated questionnaire. The data were collected from 111 nurses in nine kinds of ICUs in two education hospital. Normal saline (75.9%) was the most commonly reported solution for eye hygiene among the Palestinian nurses, and gauze soaked in normal saline or sterile water (64.3%) were the most frequently used supplies by the Turkish nurses. Although both Palestinian and Turkish ICU nurses took some precautions to prevent eye complications in critical patients, there were some gaps and insufficiencies in the eye care of ICU patients. There is a need for continuing training in this area.



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