

# 期刊荟萃

2014

June-August

@陆玫竹



# Efficacy and Safety of Early Dexmedetomidine During Noninvasive Ventilation for Patients With Acute Respiratory Failure: A Randomized, Double-Blind, Placebo-Controlled Pilot Study

June

## • PURPOSE

- Successful application of noninvasive ventilation (NIV) for acute respiratory failure (ARF) requires patient cooperation and comfort. The efficacy and safety of early IV dexmedetomidine when added to protocolized, as-needed IV midazolam and fentanyl remain unclear.

## • METHODS

- **Adults with ARF and within 8 h of starting NIV**
- Receive IV dexmedetomidine (0.2  $\mu\text{g}/\text{kg}/\text{h}$  titrated every 30 min to 0.7  $\mu\text{g}/\text{kg}/\text{h}$  to maintain a Sedation-Agitation Scale [SAS] score of 3 to 4) or placebo in a double-blind fashion up to 72 h, until NIV was stopped for  $\geq 2$  h, or until intubation.
- Patients with agitation (SAS  $\geq 5$ ) or pain (visual analog scale  $\geq 5$  of 10 cm) 15 min after each dexmedetomidine and placebo increase could receive IV midazolam 0.5 to 1.0 mg or IV fentanyl 25 to 50  $\mu\text{g}$ , respectively, at a minimum interval of every 3 h.

## • RESULTS

- The dexmedetomidine (n = 16) and placebo (n = 17) groups were similar at baseline.
- Use of early dexmedetomidine did not improve NIV tolerance (score, 1 of 4; OR, 1.44; 95% CI, 0.44-4.70; P = .54) nor, vs. placebo, led to a greater median (interquartile range) percent time either tolerating NIV (99% [61%-100%] vs. 67% [40%-100%], P = .56) or remaining at the desired sedation level (SAS score = 3 or 4, 100% [86%-100%] vs. 100% [100%-100%], P = .28), or fewer intubations (P = .79).
- Although use of dexmedetomidine was associated with a greater duration of NIV vs placebo (37 [16-72] vs. 12 [4-22] h, P = .03), the total ventilation duration (NIV + invasive) was similar (3.3 [2-4] days vs. 3.8 [2-5] days, P = .52).
- More patients receiving dexmedetomidine had one or more episodes of deep sedation vs placebo (SAS  $\leq$  2, 25% vs. 0%, P = .04). Use of midazolam (P = .40) and episodes of either severe bradycardia (heart rate  $\leq$  50 beats/min, P = .18) or hypotension (systolic BP  $\leq$  90 mm Hg, P = .64) were similar.

## • CONCLUSIONS

- Initiating dexmedetomidine soon after NIV initiation in patients with ARF neither improves NIV tolerance nor helps to maintain sedation at a desired goal. Randomized, multicenter trials targeting patients with initial intolerance are needed to further elucidate the role for dexmedetomidine in this population.

# Modified Criteria for the Systemic Inflammatory Response Syndrome Improves Their Utility Following Cardiac Surgery

June

## • PURPOSE

- Debate remains regarding whether the systemic inflammatory response syndrome (SIRS) identifies patients with clinically important inflammation. **Defining criteria may be disproportionately sensitive and lack specificity.** We investigated the incidence and evolution of SIRS in a homogenous population (following cardiac surgery) over 7 days to establish the relationship between SIRS and outcome, modeling alternative permutations of the criteria to increase their discriminatory power for mortality, length of stay, and organ dysfunction.

## • METHODS

- Consecutive patients requiring ICU admission for the first time after cardiac surgery (N = 2,764) admitted over a 41-month period were studied.

## • RESULTS

- Concurrently, 96.2% of patients met the standard two criterion definition for SIRS within 24 h of ICU admission. Their mortality was 2.78%. By contrast, three or four criteria were more discriminatory of patients with higher mortality (4.21% and 10.2%, respectively). **A test dataset suggested that meeting two criteria for at least 6 consecutive h may be the best model.** This had a positive and negative predictive value of 7% and 99.5%, respectively, in a validation dataset. It performed well at predicting organ dysfunction and prolonged ICU admission.

## • CONCLUSIONS

- The concept of SIRS remains valid following cardiac surgery.
- With suitable modification, its specificity can be improved significantly.
- We propose that meeting two or more defining criteria for 6 h could be used to define better populations with more difficult clinical courses following cardiac surgery.
- This group may merit a different clinical approach

- **Airway Inflammation and Illness Severity in Response to Experimental Rhinovirus Infection in Asthma**
- **The Right Ventricle Explains Sex Differences in Survival in Idiopathic Pulmonary Arterial Hypertension**
- **Use of Inhaled Corticosteroids in Patients With COPD and the Risk of TB and Influenza: A Systematic Review and Meta-analysis of Randomized Controlled Trials**
- **Passive Smoking Exposure Is Associated With Increased Risk of COPD in Never Smokers**

- **A Prospective Study of Estimated Glomerular Filtration Rate and Outcomes in Patients With Atrial Fibrillation: The Loire Valley Atrial Fibrillation Project**
- **Chest CT Scan Screening for Lung Cancer in Asbestos Occupational Exposure: A Systematic Review and Meta-analysis**
- **Lung Structure and Clinical Correlates of Gas Trapping and Hyperexpansion in COPD: The Multi-Ethnic Study of Atherosclerosis (MESA) COPD Study**

# Thrombosis Prophylaxis and Mortality Risk Among Critically Ill Adults

July

## **PURPOSE**

- The optimal approach for managing increased risk of VTE among critically ill adults is unknown.

## **METHODS**

- An observational study of 294,896 episodes of critical illness among adults was conducted in 271 geographically dispersed US adult ICUs.
- The primary outcomes were all-cause ICU and in-hospital mortality after adjustment for acuity and other factors among groups of patients assigned, based on clinical judgment, to prophylactic anticoagulation, mechanical devices, both, or neither.
- Outcomes of those managed with prophylactic anticoagulation or mechanical devices were compared in a separate paired, propensity-matched cohort.



## • RESULTS

- After adjustment for propensity to receive VTE prophylaxis, APACHE IV scores, and management with mechanical ventilation, **the group treated with prophylactic anticoagulation was the only one with significantly lower risk of dying than those not provided VTE prophylaxis (ICU, 0.81 [95% CI, 0.79-0.84]; hospital, 0.84 [95% CI, 0.82-0.86; P < .0001).** The mortality risk of those receiving mechanical device prophylaxis was not lower than that of patients without VTE prophylaxis. A study of 87,107 pairs of patients matched for propensity to receive VTE prophylaxis found that those managed with prophylactic anticoagulation therapy had significantly lower risk of death (ICU subhazard ratio, 0.82 [95% CI, 0.78-0.85]; hospital subhazard ratio, 0.82 [95% CI, 0.79-0.85]; P < .001) than those receiving only mechanical device prophylaxis.

## • CONCLUSIONS

- These findings support a recommendation for prophylactic anticoagulation therapy in preference to mechanical device prophylaxis for critically ill adult patients who do not have a contraindication to anticoagulation

# Ventilator-Associated Pneumonia During Weaning From Mechanical Ventilation: Role of Fluid Management

July

- **PURPOSE**

- The objective of the present study was to assess the impact of a depletive fluid-management strategy on ventilator-associated complication (VAC) and VAP occurrence during weaning from mechanical ventilation.

- **METHODS**

- Data from the B-type Natriuretic Peptide for the Fluid Management of Weaning (BMW) randomized controlled trial performed in nine ICUs. We compared the cumulative incidence of VAC and VAP between the biomarker-driven, depletive fluid-management group and the usual-care group during the 14 days following randomization.

- **RESULTS**

- Among the 304 patients analyzed, 41 experienced VAP, including 27 (17.8%) in the usual-care group vs 14 (9.2%) in the interventional group ( $P = .03$ ). From the Fine and Gray model, the probabilities of VAC and VAP occurrence were both significantly reduced with the interventional strategy while adjusting for weaning outcome as a competing event (subhazard ratios [25th-75th percentiles], 0.44 [0.22-0.87],  $P = .02$  and 0.50 [0.25-0.96],  $P = .03$ , respectively).

- **CONCLUSIONS**

- Using proper competing risk analyses, we found that a depletive fluid-management strategy, when initiating the weaning process, has the potential for lowering VAP risk in patients who are mechanically ventilated

# Clinical Application of the COPD Assessment Test: Longitudinal Data From the COPD History Assessment in Spain (CHAIN) Cohort

July

- **PURPOSE**

- The COPD Assessment Test (CAT) has been proposed for assessing health status in COPD, but little is known about its longitudinal changes. The objective of this study was to evaluate 1-year CAT variability in patients with stable COPD and to relate its variations to changes in other disease markers.

- **METHODS**

- We evaluated the following variables in smokers with and without COPD at baseline and after 1 year: CAT score, age, sex, smoking status, pack-year history, BMI, modified Medical Research Council (mMRC) scale, 6-min walk distance (6MWD), lung function, BODE (BMI, obstruction, dyspnea, exercise capacity) index, hospital admissions, Hospital and Depression Scale, and the Charlson comorbidity index. In patients with COPD, we explored the association of CAT scores and 1-year changes in the studied parameters.

- **RESULTS**

- A total of 824 smokers with COPD and 126 without COPD were evaluated at baseline and 441 smokers with COPD and 66 without COPD 1 year later. At 1 year, CAT scores for patients with COPD were similar ( $\pm 4$  points) in 56%, higher in 27%, and lower in 17%. Of note, mMRC scale scores were similar ( $\pm 1$  point) in 46% of patients, worse in 36%, and better in 18% at 1 year. One-year CAT changes were best predicted by changes in mMRC scale scores ( $\beta$ -coefficient, 0.47;  $P < .001$ ). Similar results were found for CAT and mMRC scale score in smokers without COPD.

- **CONCLUSIONS**

- One-year longitudinal data show variability in CAT scores among patients with stable COPD similar to mMRC scale score, which is the best predictor of 1-year CAT changes. Further longitudinal studies should confirm long-term CAT variability and its clinical applicability

- **Anti-inflammatory Therapy Outcomes for Mild OSA in Children**
- **Left Atrial Size, Chemosensitivity, and Central Sleep Apnea in Heart Failure**
- **Determinants of Gait Speed in COPD**
- **Current Asthma in Schoolchildren Is Related to Fungal Spores in Classrooms**
- **Causes of Pulmonary Hypertension in the Elderly**
- **Mechanical Ventilatory Support in Potential Lung Donor Patients**

# Outcomes for Patients With Cancer Admitted to the ICU Requiring Ventilatory Support: Results From a Prospective Multicenter Study

## • **PURPOSE**

- This study was undertaken to evaluate the clinical characteristics and outcomes of patients with cancer requiring nonpalliative ventilatory support.

## • **METHODS**

- This was a secondary analysis of a prospective cohort study conducted in 28 Brazilian ICUs evaluating adult patients with cancer requiring invasive mechanical ventilation (MV) or noninvasive ventilation (NIV) during the first 48 h of their ICU stay. We used logistic regression to identify the variables associated with hospital mortality.

## • RESULTS

- Of 717 patients, 263 (37%) (solid tumors = 227; hematologic malignancies = 36) received ventilatory support. NIV was initially used in 85 patients (32%), and 178 (68%) received MV. Additionally, NIV followed by MV occurred in 45 patients (53%). Hospital mortality rates were 67% in all patients, 40% in patients receiving NIV only, 69% when NIV was followed by MV, and 73% in patients receiving MV only ( $P < .001$ ). Adjusting for the type of admission, newly diagnosed malignancy (OR, 3.59; 95% CI, 1.28-10.10), recurrent or progressive malignancy (OR, 3.67; 95% CI, 1.25-10.81), tumoral airway involvement (OR, 4.04; 95% CI, 1.30-12.56), performance status (PS) 2 to 4 (OR, 2.39; 95% CI, 1.24-4.59), NIV followed by MV (OR, 3.00; 95% CI, 1.09-8.18), MV as initial ventilatory strategy (OR, 3.53; 95% CI, 1.45-8.60), and Sequential Organ Failure Assessment score (each point except the respiratory domain) (OR, 1.15; 95% CI, 1.03-1.29) were associated with hospital mortality. Hospital survival in patients with good PS and nonprogressive malignancy and without tumoral airway involvement was 53%. Conversely, patients with poor functional capacity and cancer progression had unfavorable outcomes.

## • CONCLUSIONS

- Patients with cancer with good PS and nonprogressive disease requiring ventilatory support should receive full intensive care, because one-half of these patients survive. On the other hand, provision of palliative care should be considered the main goal for patients with poor PS and progressive underlying malignancy



# Inappropriate Care in European ICUs: Confronting Views From Nurses and Junior and Senior Physicians

## • **PURPOSE**

- ICU care providers often feel that the care given to a patient may be inconsistent with their professional knowledge or beliefs. This study aimed to assess differences in, and reasons for, perceived inappropriate care (PIC) across ICU care providers with varying levels of decision-making power.

## • **METHODS**

- We present subsequent analysis from the Appropriatus Study, a cross-sectional study conducted on May 11, 2010, which included 1,218 nurses and 180 junior and 227 senior physicians in 82 European adult ICUs. The study was designed to evaluate PIC. The current study focuses on differences across health-care providers regarding the reasons for PIC in real patient situations.

- **RESULTS**

- Nurses were found to have higher PIC rates compared with senior and junior physicians.
- Nurses and senior physicians were **more** distressed by perceived disproportionate care than were junior physicians (33%, 25%, and 9%, respectively;  $P = .026$ ).
- The main reasons for PIC were prognostic uncertainty among physicians, poor team and family communication, the fact that no one was taking the initiative to challenge the inappropriateness of care, and financial incentives to provide excessive care among nurses.
- **Senior physicians**, more frequently reported pressure from the referring physician as a reason.
- Family-related factors were reported by similar proportions of participants in the three groups.

- **CONCLUSIONS**

- ICU care providers agree that excessive care is a true issue in the ICU. However, they differ in the reasons for the PIC, reflecting the roles each caregiver has in the ICU.
- Nurses charge physicians with a lack of initiative and poor communication, whereas physicians more often ascribe prognostic uncertainty.
- Teaching ICU physicians to deal with prognostic uncertainty in more adequate ways and to promote ethical discussions in their teams may be pivotal to improving moral distress and the quality of patient care

# Lung Ultrasonography for the Diagnosis of Severe Neonatal Pneumonia

August

- **PURPOSE**

- Lung ultrasonography is useful for the diagnosis of pneumonia in children and adults. This study investigated the lung ultrasound findings in severe neonatal pneumonia.

- **METHODS**

- 80 neonates were divided into two groups: 40 neonates with severe pneumonia according to their medical history, clinical manifestations, and chest radiograph findings and 40 neonates with no lung disease (control group).
- All subjects underwent bedside lung ultrasound examination in a quiet state. A single expert physician performed all ultrasound examinations. Findings of pleural line abnormalities, B lines, lung consolidation, air bronchograms, bilateral white lung, interstitial syndrome, lung sliding, and lung pulse were compared between the groups.

- **RESULTS**

- The lung ultrasound findings associated with infectious pneumonia included large areas of lung consolidation with irregular margins and air bronchograms, pleural line abnormalities, and interstitial syndrome. A large area of lung consolidation with irregular margins had 100% sensitivity and 100% specificity for the diagnosis of neonatal pneumonia.

- **CONCLUSIONS**

- Lung ultrasonography is a reliable tool for diagnosing neonatal pneumonia. It is suitable for routine use in the neonatal ICU and may eventually replace chest radiography and CT scanning

# Pharmacologic Therapy for Pulmonary Arterial Hypertension in Adults: CHEST Guideline and Expert Panel Report

## • PURPOSE

- The objective of this guideline is to provide clinicians advice regarding pharmacologic therapy for adult patients with PAH as informed by available evidence.

## • METHODS

- This guideline was based on systematic reviews of English language evidence published between 1990 and November 2013, identified using the MEDLINE and Cochrane Library databases. The strength of available evidence was graded using the Grades of Recommendations, Assessment, Development, and Evaluation methodology. Guideline recommendations, or consensus statements when available evidence was insufficient to support recommendations, were developed using a modified Delphi technique to achieve consensus.

- **RESULTS**

- Available evidence is limited in its ability to support high-level recommendations. Therefore, we drafted consensus statements to address many clinical questions regarding pharmacotherapy for patients with PAH. A total of 79 recommendations or consensus statements were adopted and graded.

- **CONCLUSIONS**

- Clinical decisions regarding pharmacotherapy for PAH should be guided by high-level recommendations when sufficient evidence is available. Absent higher level evidence, consensus statements based upon available information must be used. Further studies are needed to address the gaps in available knowledge regarding optimal pharmacotherapy for PAH

# Decrease in Mortality in Severe Community-Acquired Pneumococcal Pneumonia: Impact of Improving Antibiotic Strategies

## • PURPOSE

- Compare antibiotic prescribing practices and survival in the ICU for patients with pneumococcal severe community-acquired pneumonia (SCAP) between 2000 and 2013.

## • METHODS

- This was a matched case-control study of **two prospectively recorded cohorts** in Europe. Eighty patients from the Community-Acquired Pneumonia en la Unidad de Cuidados Intensivos (CAPUCI) II study (case group) were matched with 80 patients from CAPUCI I (control group) based on the following: shock at admission, need of mechanical ventilation, COPD, immunosuppression, and age.

- **RESULTS**

- Combined antibiotic therapy increased from 66.2% to 87.5% ( $P < .01$ ), and the percentage of patients receiving the first dose of antibiotic within 3 h increased from 27.5% to 70.0% ( $P < .01$ ). ICU mortality was significantly lower (OR, 0.82; 95% CI, 0.68-0.98) in cases, both in the whole population and in the subgroups of patients with shock (OR, 0.67; 95% CI, 0.50-0.89) or receiving mechanical ventilation (OR, 0.73; 95% CI, 0.55-0.96). In the multivariate analysis, ICU mortality increased in patients requiring mechanical ventilation (OR, 5.23; 95% CI, 1.60-17.17) and decreased in patients receiving early antibiotic treatment (OR, 0.36; 95% CI, 0.15-0.87) and combined therapy (OR, 0.19; 95% CI, 0.07-0.51).

- **CONCLUSIONS**

- In pneumococcal SCAP, early antibiotic prescription and use of combination therapy increased. Both were associated with improved survival.



- **A TB Antigen-Stimulated CXCR3 Ligand Assay for the Diagnosis of Active Pulmonary TB**
- **Cerebral Oxygenation in Patients With OSA: Effects of Hypoxia at Altitude and Impact of Acetazolamide**
- **Efficacy and Safety of a Fixed-Dose Combination of Indacaterol and Glycopyrronium for the Treatment of COPD: A Systematic Review**
- **Predictors of Mortality and Progression in Scleroderma-Associated Interstitial Lung Disease: A Systematic Review**

**THANK YOU!**

