VAP: Wake Up and Breathe

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Session Overview:

- Wake up and Breathe---‘A’ of the ABCDE bundle for critically ill patients
- Sedation guidelines implementation and management
- Spontaneous Awakening Trials

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The Critical Care Bundle: ABCDE

Three Principles:
1. Improving communication among members of the ICU team
2. Standardizing care processes
3. Breaking the cycle of over sedation and prolonged mechanical ventilation which can lead to delirium and muscle weakness

The Problem

- In the United States, 55,000 patients are cared for daily in 6000 ICUs.
- The most common reason for admission is respiratory failure and the need for mechanical ventilator.
- The vast majority of patients on ventilators require sedation.
- 60-80% of ventilated patients develop delirium at some point during their hospital course.

Ely EW et al. Delirium as a predictor of mortality in mechanically ventilated patients in the ICU. JAMA 2004; 291: 1753-62
Quote from husband of 32 year old sepsis survivor

“Doctor, she’s not all there. The wit, the comprehension, the concentration. It’s all haphazard at best. To most, it is unrecognizable. The best way to describe it is mental disorganization, like there is a connection missing or a synapse not firing. It has been 10 months, and I just keep waiting for it to straighten itself out. Is this it?”

Approach to Reducing VAP as well as optimizing overall patient outcomes

As simple as “ABCDE”

A  Awakening trial-daily
B  Breathing trial-daily
C  Coordinating A and B
D  Delirium management: non-pharmacological and pharmacological
E  Exercise—progressive mobility
Review the Evidence: ABC Trial-Objectives

- To determine the efficacy and safety of a protocol combing daily interruption of sedatives and spontaneous breathing trials (SBTs)
  - Ventilator-free days
  - ICU and hospital length of stay
  - Survival
  - Duration of coma and delirium
  - Long-term neuropsychological outcomes

Daily Interruption of Sedatives

SAT reduced ventilator time by = 2 days

Spontaneous Awakening Trial

SAT Safety Screen
- No active seizures
- No alcohol withdrawal
- No agitation
- No paralytics
- No myocardial ischemia
- Normal intracranial pressure

SAT Failure
- Anxiety, agitation, or pain
- Respiratory rate > 35/min
- SpO2 < 88%
- Respiratory distress
- Acute cardiac arrhythmia

Weaning protocol

EBT reduced weaning time by =

2 days

$p < .001$

Spontaneous Breathing Trial

SBT Safety Screen
- No agitation
- Oxygen saturation ≥ 88%
- \( P_{O2} \leq 50\% \)
- PEEP ≤ 7.5 cm H2O
- No myocardial ischemia
- No vasopressor use
- Inspiratory efforts

SBT Failure
- Respiratory rate > 35/min
- Respiratory rate < 8/min
- \( S\text{PO}_2 < 88\% \)
- Respiratory distress
- Mental status change
- Acute cardiac arrhythmia

*Adapted from Girard T et al. Lancet 2008;371:126-34

Adverse Events –
more self-extubations but not re-intubations

One-Year Survival

NNT=7


Okay, but does it mess with your head?

- Sedation Interruption group had
  - Lower Impact of Events score
    (11.2 vs. 27.3, p 0.02)
  - Trend toward a lower incidence of PTSD
    (0% vs. 32%, p 0.06)
  - Trend toward a better total Psychosocial
    Adjustment to Illness score
    (46.8 vs. 54.3, p 0.08)
- NO!!! If anything it is good for your head
### What about other stuff?

<table>
<thead>
<tr>
<th>Complication</th>
<th>Intervention No.</th>
<th>Control No.</th>
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<tbody>
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<td>5</td>
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<tr>
<td>Upper gastrointestinal hemorrhage</td>
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<td>4</td>
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<tr>
<td>Bacteremia</td>
<td>4</td>
<td>7</td>
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<tr>
<td>Barotrauma</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>VTE</td>
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<td>5</td>
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<tr>
<td>Cholestasis</td>
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<td>1</td>
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<tr>
<td>Sinusitis</td>
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<tr>
<td><strong>Total (No.)</strong></td>
<td><strong>13</strong></td>
<td><strong>26</strong></td>
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</tbody>
</table>

Fewer overall complications with daily interruption

Crit Care Med 2004; 32:1272

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### Seems simple but...

Only 55% of patients who pass an SBT are extubated

![Bar Chart]

Crit Care Med 2008;36:2753
Turn the Evidence into behaviors: Implementation

- Understand current sedation practices for ventilated patients
- Sedation guidelines incorporating a sedation scale and pain scale
- Spontaneous Awakening Trial
Ideal Sedation Management

- Goal-directed approach
  -- Objective measure of a desired goal
  -- Frequent reassessment of that measure
  -- Change therapy to achieve and remain at goal
- Utilize therapeutic approaches that are evidence-based
- Allow for patient-centered deviations as necessary

Spontaneous Awakening Trial

- Define time of day to be done
- All continuous IV medication given for sedation should be completely turned off
- Evaluate for pass/fail
- If fail, restart sedative at ½ the previous dose
Execute: Create Independent Redundancy

Develop unique and separate system checks
- Standard Order Sets
- Multidisciplinary Rounds with Daily Goals
- Policies/Procedures
- Pharmacist rounding on patients
- Algorithm
- Guidelines
- Pocket Cards
- Fliers

Questions