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<td>MAJ DE JONG MARLA J</td>
<td>UNIVERSITY OF KENTUCKY LEXINGTON</td>
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SESSION SUMMARY FORMAT
(Submit one copy only on Computer Diskette or via e-mail in WORD only)

Title of Presentation (limit to 50 characters): Sedation Assessment: Time for a Change!

Sponsorship if applicable: Abbott Laboratories, Inc, Hospital Products Division

Speaker(s) Name, NO CREDENTIALS: Marianne Chulay, Lorie Wild, Marla DeJong

Date(s), Time(s) if available: Tuesday, May 20, 2:15-3:00 and 4:00 to 5:15 pm

Content Description: Sedative medications are commonly prescribed to critically ill patients to manage a variety of physiologic and psychological conditions. Dosing of sedative agents are typically titrated to achieve an acceptable level of sedation based on frequent patient assessment. Despite a number of published sedation assessment scales, most lack adequate validity and reliability testing and their clinical usefulness in critically ill patients is limited. This panel discussion will compare and contrast the most common sedation assessment scales, suggest components of an ideal sedation assessment scale, and discuss challenges to the design and testing of a sedation assessment scale for use in critically ill patients.

Learning Outcomes (provide 3)

"At the end of the session the participant will be able to:"

1. List common goals of sedation management.

2. Discuss limitations of the current sedation assessment scales for use in critically ill patients.

3. List several desired components of a sedation assessment scale for use in common clinical situations in critical care.

Summary of Key Points:

I. Introduction

II. Abbott Laboratories / AACN/ Saint Thomas Hospital Sedation Assessment Collaboration

III. Goals of Sedation Management

A. Prevention of self harm

B. Relief of anxiety and/or agitation

C. Promotion of comfort

D. Promotion of ventilator synchrony

E. Creation of an amnesic state

F. Promotion of sleep

DISTRIBUTION STATEMENT A
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G. Adjunct to neuromuscular blockade

IV. Limitations of Current Sedation Assessment Scales (see Tables 1 and 2)

A. Most evaluate agitation or consciousness only and do not address other goals for sedation management

B. Levels of scales overlap and combine more than one dimension for evaluation into each level

C. Most designed for use during or immediately following anesthesia

D. Newer sedative agents produce sedative states which are not easily assessed with current sedation scales

E. Limited testing in critically ill patients

F. Provide little to no guidance on drug administration

V. Requirements for New Sedation Assessment Scales

A. Facilitate identification of sedation goal(s)

B. Include subscales for each of the major goals for sedation management

C. Acknowledge need to adequately manage pain separate from sedation management

D. Use information technology resources (e.g., PDAs, computers) to simplify interpretation of subscale ratings

E. Easy for clinicians to use

VI. Challenges to Design of a New Sedation Assessment Scale

A. Identifying appropriate subscales for inclusion

B. Rigorous validity and reliability testing of the new scale

C. Testing in a variety of critically ill patient populations

D. Development of sedation management algorithm

Bibliography/Webliography (limit to eight, listed in alphabetical order by author name):


Hansen-Flaschen J, Cowen J, Polomano RC. Beyond the Ramsey scale: Need for a validated measure of sedating drug efficacy in the intensive care unit. Critical Care Medicine

Lieberman J, Tremper K. Sedation: If you do not know where you are going, any road will get you there. Crit Care Med 1999;27:1395-1396.


Speaker Contact Information: chulay@aol.com; mdejong@aol.com; lwild@u.washington.edu
Is it time for a change?

- Limitations of current sedation assessment scales
- Complexity of therapeutic sedation
  - conditions/symptoms managed by sedation
  - sedation as a treatment
- New sedation agents produce different sedation states not captured on current scales
- Demand for evidence-based tools to guide clinical practice

---

What should it look like?

- Incorporate characteristics and goals of therapeutic sedation
  - solid "anchors" that cover the scope of the characteristics or therapeutic endpoints to guide use
- Reliable: consistent results when used over time and by different practitioners
- Valid: measures what it is supposed to measure
- Detect changes over time
  - within and across patients
- Feasible for use in clinical practice

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Goals of Sedation Management

- Physiologic Stability
  - Hemodynamic Stability
  - Ventilator Synchrony
- Comfort
  - Amnesia
  - Anxiety
  - Sleep/Rest
- Patient Safety
  - Agitation
  - Behavior

---

Physiologic Stability

- Hemodynamic Stability
  - BP, HR, or CI fluctuations < 15%
- Ventilator Synchrony
  - BP, HR, or CI fluctuations ≥ 15%
  - Complete Dysynchrony: "buckling the vest"
  - Synchrony with ventilator
Goals & Anchors

Comfort

- Anxiety
  - No anxiety
  - Severe anxiety

- Amnesia
  - No recall or intact recall

- Sleep
  - Balanced sleep
  - Insomnia

Goals & Anchors

Patient Safety

- Arousalability
  - Awake
  - No arousal to physical stimuli

- Agitation
  - Calm
  - Very agitated

- Behavior
  - Tolerates treatment
  - Dangerous behavior to self or others

Validity

- Does the scale measure what it is supposed to measure?
  - Appears to be by looking at it
  - Relates to other measurements of the same thing
  - Differentiates from other measures of similar things

Validity of Sedation Scales

Patient Safety

- Arousalability

Comport

Physiologic Stability

- Agitation

Most of the current scales have limited testing of validity

Reliability

- Do you get the same score when...
  - Different nurses independently assess the same patient?

- Assessing a patient at different times when his condition is the same?

Feasibility

- The assessment scale must be easy to use in the clinical setting
  - Short as possible
  - Understandable
  - Offer good descriptions to be self-explanatory
Desirable Characteristics of a Sedation Scale

- Use of an “index” or composite scale
  - Incorporates core measures of therapeutic sedation
    - Physiologic Stability, Comfort, Patient Safety
  - Able to measure unique situations
    - e.g., assess and manage pain separately from sedation

Many parts comprise the whole

Desirable Characteristics

- Use information technology resources to simplify interpretation of subscale ratings

Example of a New Sedation Scale with Multiple Domains

Steps in Assessing Sedation:

1. Assess patient’s level of pain:
   - Numeric Pain Scale:
     - 0 (no pain)
   - Facial Expression Pain Scale:
     - 0 (Normal)
     - 1 (Frown)
     - 2 (Wince)
     - 3 (Fitting Lips)
     - 4 (Witner)
     - 5 (Tense)
     - 6 (Squat)
     - 7 (Wit)
     - 8 (Cry)

2. Assess sedation level using the scale below.

3. Adjust sedation level (e.g., increase, decrease, maintain) to keep sedation score in the desired range for sedation goals.

Example of a New Sedation Scale with Multiple Domains

<table>
<thead>
<tr>
<th>Cognitive Reactions</th>
<th>Motor Activity</th>
<th>Respiratory</th>
<th>Skin Changes</th>
<th>Other</th>
<th>Sedation Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Awake</td>
<td>Normal</td>
<td>Normal</td>
<td>Normal</td>
<td>Normal</td>
<td>1 (Awake)</td>
</tr>
<tr>
<td>Alert</td>
<td>Normal</td>
<td>Normal</td>
<td>Normal</td>
<td>Normal</td>
<td>2 (Alert)</td>
</tr>
<tr>
<td>Drowsy</td>
<td>Normal</td>
<td>Normal</td>
<td>Normal</td>
<td>Normal</td>
<td>3 (Drowsy)</td>
</tr>
<tr>
<td>Sleepy</td>
<td>Normal</td>
<td>Normal</td>
<td>Normal</td>
<td>Normal</td>
<td>4 (Sleepy)</td>
</tr>
<tr>
<td>Sedated</td>
<td>Normal</td>
<td>Normal</td>
<td>Normal</td>
<td>Normal</td>
<td>5 (Sedated)</td>
</tr>
<tr>
<td>Deep Sedation</td>
<td>Normal</td>
<td>Normal</td>
<td>Normal</td>
<td>Normal</td>
<td>6 (Deep Sedation)</td>
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</table>

Challenges to Design

- Identify and define appropriate subscales for inclusion
- Rigorous testing for validity and reliability
- Testing in a wide variety of critically ill patient populations
- Easy to use clinically
- Guide sedation management (algorithms)
Goals of Sedation Management

- Prevent harm to self
- Relieve anxiety and/or agitation
- Promote comfort
- Promote ventilator synchrony
- Create an amnesic state
- Promote sleep
- Support neuromuscular blockade

Goals of Sedation Management

- Comfort – Includes relief of anxiety, pain, respiratory distress / dyspnea
- Amnesia
- Patient Safety

Sedation vs. Pain Management

- Sedation management: relief of anxiety and agitation; induction of a calm state; provide amnesia
- Pain management: relief of unpleasant sensory and emotional experiences

Pain Under Treated in Critically Ill Patients

"Current ICU practice uses too little analgesia and too much sedation. If we did a better job of pain management, our need to use benzodiazepams and alpha agonist agents would be less. Sedatives should be used as an adjunct to analgesia, not to replace it. If pain is addressed adequately, the need for sedation is very, very, small."

“Best” Sedation Assessment Scales

- Ramsay Scale
- Sedation Agitation Scale
- Motor Activity Assessment Scale

Some validity and reliability testing in these scales – more testing needed


**Ramsay Scale**

<table>
<thead>
<tr>
<th>Score</th>
<th>Level of Agitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Patient anxious or agitated or both</td>
</tr>
<tr>
<td>2</td>
<td>Patient cooperative, oriented and tranquil</td>
</tr>
<tr>
<td>3</td>
<td>Patient responds to commands only</td>
</tr>
<tr>
<td>4</td>
<td>Patient asleep with a brisk response to a light glabellar tap</td>
</tr>
<tr>
<td>5</td>
<td>Patient asleep with a sluggish response to a light glabellar tap</td>
</tr>
<tr>
<td>6</td>
<td>No response</td>
</tr>
</tbody>
</table>

**Sedation – Agitation Scale (SAS)C**

<table>
<thead>
<tr>
<th>Score</th>
<th>Level of Agitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Unarousable – minimal or no response to noxious stimuli</td>
</tr>
<tr>
<td>2</td>
<td>Very sedated – arouses to physical stimuli but does not communicate or follow commands</td>
</tr>
<tr>
<td>3</td>
<td>Sedated – difficult to arouse, awakens to verbal stimuli or gentle shaking but drifts off again, follows simple commands</td>
</tr>
<tr>
<td>4</td>
<td>Calm and cooperative – calms, awakens easily, follows commands</td>
</tr>
<tr>
<td>5</td>
<td>Agitated – anxious or mildly agitated, attempting to sit up, calms to verbal instructions</td>
</tr>
<tr>
<td>6</td>
<td>Very agitated – does not calm, despite verbal reminding of limits, requires physical restraints, biting ET tube</td>
</tr>
<tr>
<td>7</td>
<td>Dangerous agitation – pulling at ET tube, trying to remove catheter, climbing over bed rail, striking at staff, thrashing side to side</td>
</tr>
</tbody>
</table>

**Motor Activity Assessment Scale (MAAS)**

<table>
<thead>
<tr>
<th>Score</th>
<th>Level of Agitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Unresponsive – does not move with noxious stimuli</td>
</tr>
<tr>
<td>2</td>
<td>Responsive only to noxious stimuli – opens eyes or raises eye brows or turns head toward stimulus</td>
</tr>
<tr>
<td>3</td>
<td>Responsive to touch or name – opens eyes or raise eye brows or turns head toward stimulus or moves limb when touched or name is spoken loudly</td>
</tr>
<tr>
<td>4</td>
<td>Calm and cooperative – no external stimulus is required to elicit movement purposefully and follow commands</td>
</tr>
<tr>
<td>5</td>
<td>Restless and cooperative – no external stimulus is required to elicit movement and patient is picking at clothes or tubes or uncovering self and follows commands</td>
</tr>
<tr>
<td>6</td>
<td>Agitated – no external stimulus is required to elicit movement and attempting to sit up or move limbs out of bed and does not consistently follow commands</td>
</tr>
<tr>
<td>7</td>
<td>Dangerously agitated, noncooperative – no external stimulus required to elicit movement and patient is pulling at tubes or catheters or thrashing able to slide or striking at staff or trying to climb out of bed and does not calm down when asked</td>
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**Richmond Agitation / Sedation Scale (RAAS)**

<table>
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<th>Score</th>
<th>Level of Agitation</th>
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<tr>
<td>+6</td>
<td>Combative – overly combative or violent; immediate danger to self</td>
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<tr>
<td>+5</td>
<td>Very agitated – pulls on or removes tube(s) or catheter(s) or has aggressive behavior toward staff</td>
</tr>
<tr>
<td>+4</td>
<td>Agitated – frequent nonpurposeful movement or patient-ventilator dysynchrony</td>
</tr>
<tr>
<td>+3</td>
<td>Restless – anxious or apprehensive but not aggressive or disruptive</td>
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<tr>
<td>+2</td>
<td>Alert and calm</td>
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<tr>
<td>+1</td>
<td>Drowsy – not fully alert, but has sustained (more than 15 sec) awakens with eye contact to voice</td>
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<tr>
<td>0</td>
<td>Light sedation – briefly (less than 10 sec) awakens with eye contact to voice</td>
</tr>
<tr>
<td>-1</td>
<td>Moderate sedation – any movement (but no eye contact to voice)</td>
</tr>
<tr>
<td>-2</td>
<td>Deep sedation – no responsive to voice, but any movement to physical stimulation</td>
</tr>
<tr>
<td>-3</td>
<td>Unarousable – no response to voice or physical stimulation</td>
</tr>
</tbody>
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**Limitations of Sedation Assessment Scales**

- Only evaluate agitation or consciousness
- Overlap between levels of the scale
- Mainly designed for evaluation in the perioperative period – not for critical care use
- Do not include sedation level descriptions which coincide with sedation states of newer sedative agents

**Goals of Sedation Management**

- Patient safety
- Discharge readiness
- Physical stability
- Pain management
- Anxiety management
- Sleep management
- Apgar evaluation
- Behavior management

**Notes:**

- Each scale examines only this aspect of sedation needs.
Limitations of Sedation Assessment Scales

- Only evaluate agitation or consciousness
- Overlap within a single scale
- Mainly designed for evaluation in the perioperative period – not for critical care use
- Fail to include sedation level descriptions which coincide with sedation states of newer sedative agents

Limitations of Sedation Assessment Scales

- Poorly tested in critically ill patients
- Fail to guide drug administration
- Not individualized to specific patient goals

Video of Sedated Patient

Pain

- Pain management is first priority of sedation management
- Assess pain in conjunction with sedation

Future Challenges

- Foster communication with the sedated pt
- Design an objective sedation scale
- Differentiate b/t sedation and analgesia
- Promote multidisciplinary commitment to sedation assessment and management
- Research and adopt a national standard for sedation management