Daily Sedation Interruption Impact on Mechanical Ventilation Days

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Purpose

The purpose of this study is to determine if implementing daily sedation interruptions for adult mechanically ventilated patients in the intensive care unit (ICU) decreases their length of mechanical ventilation.

Clinical Question

In adult patients on a ventilator in the ICU does daily sedation interruption compared to continuous sedation (current practice) lead to shorter days of mechanical ventilation during an ICU stay?

Summary of the Problem

Hundreds of thousands of critical care patients are intubated every year. Many of these patients are sedated for comfort. However, continuous moderate to deep sedation can lead to increased ventilator days and other morbitities, including delirium. Every ICU uses a variety of sedation practices. Furthermore, there are barriers to the healthcare team using daily sedation interruptions. These include the concern that the patient will self extubate and that it will worsen the patient's respiratory status. This leads to practitioners not implementing the practice.

Search

Databases: Ovid/Medline, CINHAL, and Embase

Terms:

- Daily sedation interruption
- Conscious sedation AND sedation AND respiration, artificial AND "intensive care unit OR critical care"
- "Critical care OR intensive care units" AND sedation AND respiration, artificial
- Daily sedation interruption AND artificial respiration

Inclusion Criteria: English, adults, and articles from 2008-2014.

Exclusion Criteria: Pediatrics, foreign languages, and articles older than 2008

Articles Found: Eleven Research Studies and one systematic review

Table of Evidence

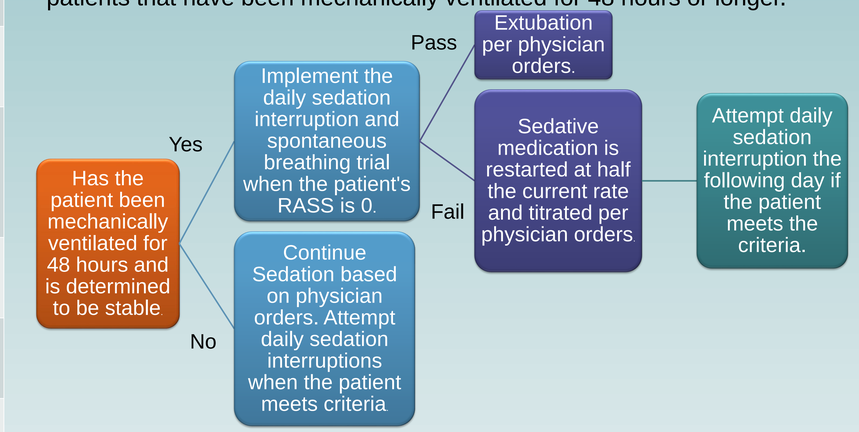
Article	Summary	SORT Level of Evidence
Kress, J.P. et al. (2000)	Randomized controlled trial (RCT) that found that using daily sedation interruptions (DSI) decreased ventilator days by 2.4 days.	2
Weisbrodt, L. et al. (2011)	Double blind RCT that found no differences between the control group and DSI group.	2
Mehta, S. et al. (2012)	Multicenter RCT the found that DSI didn't decrease ventilator days in medical ICU patients. DSI did decrease ventilator days by 7 days in trauma and surgical patients.	1
Egerod, I. et al. (2010)	Nonrandomized two part prospective controlled study that found that DSI didn't decrease ventilator days.	2
de Wit, M. et al. (2008)	RCT that found that using a sedation algorithm was safer and lead to less ventilator days than using DSI.	2
Anifantaki, S. et al. (2009)	RCT that found that there were no significant differences between the DSI and control groups.	2
Jackson, J.C. et al. (2010)	Single blinded RCT that found that there were similar long term outcomes in the control and DSI groups. The DSI group had better functional outcomes.	1
Girard, T.D. et. al. (2008)	Multicenter RCT found that pairing DSI and spontaneous breathing trials lead to shorter ventilator days.	1
Bucknall, T.K. et al. (2008)	Prospective RCT found that a sedation protocol did not decrease the length of ventilator days.	2
Balas, M.C. et al. (2014)	Prospective before and after study that found that using DSI decreased ventilator days by 3 days.	2

Key: SORT Level 1=good quality, patient-oriented evidence. Level 2-=limited-quality, patient-oriented evidence. Level 3=other evidence (Ebell et al., 2004)

Kotter and Cohen's Change Model

Recommendation for Practice Change

The research was inconclusive, however it was found that using daily sedation interruptions is either equal to or superior to standard practice. It is recommended that daily sedation interruptions in conjunction with spontaneous breathing trials should be incorporated into the care of adult patients that have been mechanically ventilated for 48 hours or longer.



Components of Practice Change

Key Stakeholders: Mechanically ventilated adult ICU patients, nurse manager, ICU physicians, and nursing staff
Barriers: Time limits, the nurses fears that the patients will self extubate or their respiratory status will worsen and inadequate education or staffing.
Facilitators of Change: Nurse manager, leading ICU attending, senior nurses, and clinical educator.

Evaluation Criteria

Formative: Staff questionnaires and keeping track of the individual patient's outcomes, ventilator days, and adverse events.
Summative: Compare the average duration of ventilator days and adverse events pre and post implementation.

Implication for Practice

- Decrease ventilator days
- Improve patient's outcomes
- Decrease healthcare costs

References on Handout