

Available online at [www.sciencedirect.com](http://www.sciencedirect.com)

ScienceDirect

journal homepage: <http://www.elsevier.com/journals/international-journal-of-nursing-sciences/2352-0132>

## Original Article

# Effectiveness of daily interruption of sedation in sedated patients with mechanical ventilation in ICU: A systematic review



Hong-Bo Chen <sup>a</sup>, Jun Liu <sup>a</sup>, Li-Qin Chen <sup>a</sup>, Gong-Chao Wang <sup>b,\*</sup>

<sup>a</sup> School of Nursing, Shandong University, Jinan, China

<sup>b</sup> Department of Surgery, School of Nursing, Shandong University, Jinan, China

## ARTICLE INFO

## Article history:

Received 10 June 2014

Received in revised form

9 October 2014

Accepted 20 October 2014

Available online 6 November 2014

## Keywords:

Daily interruption of sedation

Mechanical ventilation

Meta-analysis

Sedation

## ABSTRACT

**Purpose:** To evaluate the effectiveness of daily sedation interruption in patients with mechanical ventilation in intensive care unit (ICU).

**Methods:** The randomized controlled trials (RCTs) on the application of daily interruption of sedation in sedated patients with mechanical ventilation in ICU were collected through databases including Cochrane library, MEDLINE, Web of Knowledge, Embase, CNKI, CBM and VIP Data. Two reviewers independently assessed the quality of studies and extracted the data. Meta-analysis was conducted on the included studies.

**Results:** Eight RCTs involving 757 patients were included. The daily sedation interruptions could shorten the duration of mechanical ventilation ( $Z = 5.36, p < 0.0001$ ), length of stay ( $Z = 2.93, p = 0.003 < 0.05$ ) and reduce the rate of tracheotomy ( $Z = 3.97, p < 0.00001$ ) in these patients. Additionally, daily sedation interruption was not associated with increased rate of unplanned extubation by the patients ( $Z = 0.53, p = 0.6 < 0.05$ ).

**Conclusion:** The application of daily interruption of sedation in patients with mechanical ventilation in ICU is safe and effective.

Copyright © 2014, Chinese Nursing Association. Production and hosting by Elsevier (Singapore) Pte Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

## 1. Introduction

Mechanical ventilation is one of the common treatment methods for various diseases complicated with respiratory failure. The majority of intensive care unit (ICU) patients receiving mechanical ventilation are critically ill. The pain from their disease in combination with invasive treatment and the worry about disease prognosis, often render patients

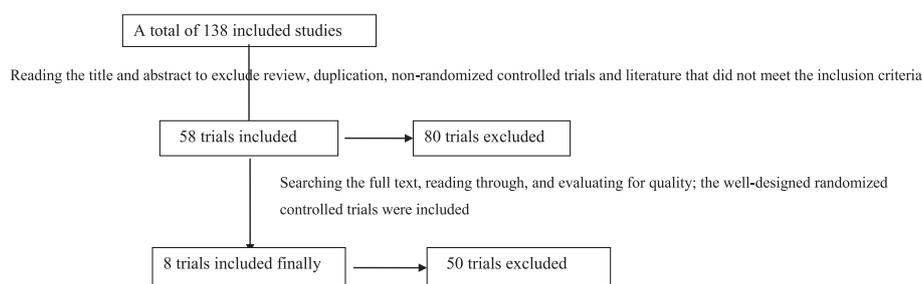
feeling “helpless” and “fearful”, hindering the treatment [1]. The pertinent literature reports that sedation can increase comfort and stimulate organ recovery, reduce patient's anxiety, oxygen consumption and the rate of unplanned extubation by the patients [2,3]. However, the majority of ICU patients have a problem with excessive sedation. Many traditional sedative drugs, such as opium and benzodiazepine, may increase the risk of delirium and long-term cognitive impairment. The curative effect of new sedative drugs,

\* Corresponding author.

E-mail address: [wanggongchao@126.com](mailto:wanggongchao@126.com) (G.-C. Wang).

Peer review under responsibility of Chinese Nursing Association.  
<http://dx.doi.org/10.1016/j.ijnss.2014.10.011>

2352-0132/Copyright © 2014, Chinese Nursing Association. Production and hosting by Elsevier (Singapore) Pte Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).



**Fig. 1 – Flow chart of study selection. Studies comparing daily sedation interruption with no daily sedation interruption for critically ill adult patients from CNKI, CBM, VIP data, Cochrane library, MEDLINE, Web of Knowledge and Embase databases before March 2014.**

such as remifentanyl and dexmedetomidine, remains uncertain [4]. Implementation of daily sedation interruption has been shown to prevent excessive sedation of critically ill patients, reducing the mechanical ventilation time, and the length of ICU and hospital stay [3–5]. However, others have shown that interrupting sedation on a daily basis can increase the rate of unplanned extubation, causing long-term psychological complications in these patients. Consequently, the application of the daily interruption of sedation has not been used extensively [4]. This study analysed randomized controlled trials on daily interruption of sedation using meta-analysis. The effectiveness of the procedure in sedated patients with mechanical ventilation in ICU was verified providing a reliable basis for the future clinical work.

## 2. Methods

### 2.1. Retrieval strategy

The retrieval strategy in Chinese language used Chinese National Knowledge Infrastructure (CNKI), China Biology Medicine (CBM) and VIP journals resource integration platform (VIP) databases to search for “daily interruption of sedation or daily sedative interruption or daily awakening” and “mechanical ventilation”. The retrieval strategy in English language was used in Cochrane library, MEDLINE, Web of Knowledge and Embase to search for “daily interruption of sedation or daily sedative interruption or daily awakening” and “mechanical ventilation”. The process of literature retrieval had three steps: 1) retrieve the relevant original documents from the databases, followed by the analysis of the title, abstract, and keywords for each document to ensure the suitable search keywords; 2) retrieve all relevant keywords from the databases, if the abstract was in accordance with the inclusion criteria, the text underwent further search; 3) use the obtained references and associated literature to search further.

### 2.2. Exclusion and inclusion criteria

Only randomized controlled trials comparing daily sedation interruption versus no-daily sedation interruption in critically ill adult patients (>18 years old) with mechanical ventilation for > 24 h were included [5]. Studies comparing two different sedative agents with all of the participants using daily

sedation interruption were excluded. The patients who were rescued by cardiopulmonary resuscitation, were pregnant, had mental problems or who had accepted sedation outside of the hospital were also excluded. For the literature to be included it had to contain at least one of the following outcomes: 1) the duration of mechanical ventilation, 2) length of stay in ICU, 3) rate of unplanned extubation by the patients and 4) the risk of requiring tracheostomy.

### 2.3. Quality evaluation of literature

All of the included literature was evaluated using the instructions of RCT provided by the Joanna Briggs Institute Evidence-based Healthcare. The evaluation standard includes randomization method, blinding of treatment, allocation concealment, and inclusion and exclusion criteria. The allocation grading was based on the Cochrane approach, adequate, uncertain or clearly inadequate.

### 2.4. Document screening and data extraction

Two researchers independently read the title and abstract of the included documents to determine whether the literature was in compliance with the inclusion criteria. In cases when it was challenging to determine whether or not literature complied with the inclusion criteria, the third party was brought in to review the document. Once the initial screening was completed, the two researchers further read the literature and extracted the data according to the unified criteria. A data extraction form included the sample size, intervention measures, the outcomes, researchers evaluations, and grading of the literature. The two researchers had to reach a consensus through discussion and create a formal extraction table.

### 2.5. Statistical analysis

The Review Manager 5.2 (COMPANY, TOWN, COUNTRY) was used for the meta-analysis. The presence of heterogeneity among the trials was assessed by the  $\chi^2$ , and the extent of the inconsistency was assessed using  $I^2$  statistics. A  $p$  value >0.1 and  $I^2 > 50\%$  was regarded as not significant heterogeneity. In this case, the fixed effect model was selected for further analysis. A  $p$  value <0.1 and  $I^2 > 50\%$  was regarded as a significant heterogeneity. In this case, the random effect model was selected for analysis [6].

Download English Version:

<https://daneshyari.com/en/article/2655765>

Download Persian Version:

<https://daneshyari.com/article/2655765>

[Daneshyari.com](https://daneshyari.com)