Nursing in Critical Care

Early sedation with dexmedetomidine in post-operative adult intensive care unit patients

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Abstract

Background

Delirium is a leading healthcare concern in adult Intensive Care Units (ICU) and has a reported prevalence of up to 80%. Although individual studies report that early sedation with dexmedetomidine in post-operative patients including its nocturnal administration can improve sleep quality and reduction in ICU delirium, these have not been synthesised in a systematic review.

Aim

The aim of this systematic review was to evaluate the effectiveness of early administration of dexmedetomidine infusion in the prevention of delirium, reduction in agitation, and improved sleep quality among post-operative adults in ICU.

Methods

A systematic search was conducted across PubMed, CINAHL, MEDLINE, and EMBASE, together with a search for grey literature. Two authors independently screened the search results, extracted data, and assessed risk of bias. Data were meta-analysed using RevMan 5.4 software. A simplified Cochrane approach was used in this review.

Results

Five randomised controlled trials with 2173 participants were included. Risk of bias was assessed with the five studies included in this review. Of the five included studies, two were identified as having components with a high risk of bias; one study reporting high risk of bias in the domain of other biases, and the other study in the domains of allocation concealment as well as in the domains of blinding of participants and personnel. All other studies and

domains were either low or unclear risk of bias. The result indicated that the incidence of delirium was reduced among the dexmedetomidine group (RR: 0.08, 95% CI -0.15 to -0.01, 3 studies, 1045 patients) when compared to those who received other medications. There was no difference in agitation (RR: 0.85, 95% CI 0.51 to 1.44, 2 studies, 779 patients), and although better sleep was associated with the dexmedetomidine group, no data focusing on the sleep quality was reported.

Conclusion

The pooled result of this systematic review indicated a reduction in the incidence of delirium among ventilated patients who received early administration of dexmedetomidine post-operatively. Although pooled sample sizes are relatively high, each outcome is based on one or two studies of primarily low or unclear risk of bias. Further research is warranted to determine the potential benefit of dexmedetomidine on agitation and sleep quality.

Relevance to clinical practice

The findings from this study support the use of light sedation, such as dexmedetomidine as recommended in the Society of Critical Care Medicine's guidelines.

What is known about this topic?

- Delirium occurs in over 80% of adult patients in intensive care.
- The Society of Critical Care Medicine's guidelines recommends the use of light sedation, such as dexmedetomidine.
- Individual trials have reported mixed outcomes on the relationship between delirium and dexmedetomidine.

What this paper adds?

- This systematic review supports the findings from individual RCT studies that dexmedetomidine reduces the incidence of delirium among post-operative ICU ventilated patients when compared to placebo or other medications groups.
- The findings support the Society of Critical Care Medicine's guideline recommendation for the use of light sedation, such as dexmedetomidine in post-operative ICU ventilated patients.

Title

Early sedation with Dexmedetomidine in post-operative adult intensive care unit patients: A systematic review.

Introduction/Background

As one of the leading health care concerns, delirium has received increased attention in the critical care community in the last three decades (Burry *et al.* 2018). It is recognized in up to 89% of hospitalized patients, and in over 80% of patients admitted to Intensive care units (ICU) (Hayhurst *et al.* 2016). While the incidence rate of delirium depends on the severity of baseline illness, it is believed to be preventable in about 30-40% of cases (Janssen *et al.* 2019).

Delirium was first described by Hippocrates in ancient B.C times who termed it 'phrenitis' referring to restlessness and confusion that fluctuates unpredictably (Slooter 2017). Since then, many terminologies have been used to describe the condition and finally, the term delirium, which is derived from the Latin word "delirare", meaning deviated from the straight track, has gained universal acceptance (Slooter 2017). Delirium is a complex multifactorial condition, and its pathophysiological process is poorly understood (Arumugam *et al.* 2017, Van Den Boogaard *et al.* 2018, Khan *et al.* 2019). The risk factors for delirium are an interplay of predisposing and precipitating factors such as prolonged pain, illness severity, sleep deprivation, and advanced age (Burry *et al.* 2018). Delirium can be classified into hyperactive delirium, hypoactive delirium, and mixed delirium (Hayhurst *et al.* 2016, Herling *et al.* 2018, Tilouche *et al.* 2018). Of the multiple tools available for delirium detection, the CAM-ICU tool is reported to have 95-100% sensitivity and about 83% reliability across the ICUs internationally in the management of delirium (Morandi *et al.* 2017, Jayaswal *et al.* 2019). Delirium can be managed through pharmacological and non-pharmacological approaches or a combination of these (Arumugam *et al.* 2017).

Despite an expanding body of literature, there is no single pharmacological approach proven to treat delirium effectively (Hayhurst *et al.* 2016). The latest pain, agitation, delirium, Immobility, and Sleep (PADIS) guidelines from the Society of Critical Care Medicine (SCCM) recommends a shift from the use of high-risk agents such as haloperidol and benzodiazepines

towards the use of light sedation such as dexmedetomidine (Devlin *et al*. 2018). An observational cohort study by Cheng *et al.* (2016) demonstrated a reduction in the delirium incidence in the dex group in comparison to the non-dex group with an incidence rate of 7.21% versus 10.95% respectively. A randomised controlled trial (RCT) conducted by Su *et al.* (2016) reported improved sleep quality in the group receiving dexmedetomidine, and this was inversely proportional to delirium reduction. Moreover, a multinational RCT across 74 ICUs from eight countries referred to as the DEXDOR SPICE III study, reported one additional delirium-free day in the dexmedetomidine group as compared to the usual care group (Shehabi *et al.* 2019). Furthermore, a systematic review of 16 RCTs demonstrated that dexmedetomidine was associated with delirium reduction (Constantin *et al.* 2016). Similarly, a systematic review and meta-analysis (MA) of 77 RCTs with 11,997 medicals as well as surgical patients demonstrated that dexmedetomidine was associated with reduction in ICU delirium (Lewis *et al.* 2022). No recent systematic review focused exclusively on post-operative ventilated patients in ICU and in the light of three RCTs (Su *et al.* 2016, Li *et al.* 2017, Shehabi *et al.* 2019) that have been published in the last eight years, the authors elected to conduct a systematic review and meta-analysis on this topic.

Aim / Objectives

This systematic review aimed to evaluate the effectiveness of early sedation with dexmedetomidine including nocturnal dexmedetomidine administration in the prevention of delirium, reduction in agitation, and improved sleep quality when compared to the other medications among post-operative patients in adult intensive care units. Other medications may include but were not confined to propofol, morphine, and placebo such as 0.9% normal saline.

The objectives of this review were:

1. To determine the effectiveness of early sedation with dexmedetomidine including nocturnal dexmedetomidine infusion in post-operative adult patients in reducing the incidence of ICU delirium, measured using the Confusion assessment method in ICU (CAM-ICU) tool.
2. To determine the effectiveness of early sedation with dexmedetomidine including nocturnal dexmedetomidine infusion in post-operative adult patients in reduction of agitation, as measured using the Richmond Agitation and Sedation Score (RASS).
3. To determine the effectiveness of early sedation with dexmedetomidine including nocturnal dexmedetomidine infusion in post-operative adult ICU patients in the improvement in sleep quality using the sleep quality numerical rating scale (NRS).

Design and methods

Literature search strategy

A comprehensive search was carried out based on the PICOS acronym. The electronic database search engines, PubMed, CINAHL, MEDLINE, and EMBASE were searched. A search of grey literature using www.opengrey.eu for information on grey literature in Europe and www.greylit.org for American-based papers were also conducted in ProQuest to obtain additional studies relevant to the aims and objectives. Seven main concepts were developed: Delirium, Dexmedetomidine, Sleep, Surgery, Sedatives, Ventilation, and Intensive care unit. The main search concepts were then explored by using a thesaurus for all the available synonyms for each of the key concepts. No limiters such as time limits, language limits were applied to avoid or at least minimize biases and to ensure that all the relevant articles were captured. All the non-English publications had included an abstract in English which facilitated study selection during the title & abstract phase. There were no restrictions applied on publication years. The search was conducted initially in November 2021 and updated in March 2022. This review was not registered on a review database.

Study Selection

Screening was conducted independently by two reviewers at two levels, the title and abstract, and full-text review. During the screening and selection process, any conflicts of opinion between reviewers were discussed and resolved via video conference until mutual agreement was reached. The final decision was made based on the study's inclusion criteria.

Inclusion and Exclusion criteria

Studies that met the following criteria were included: (a) **P**opulation: post-operative male or female patients aged 18 or over who had undergone any form of surgery and were mechanically ventilated via an invasive mode of ventilation, either with an endotracheal tube or tracheostomy tube in place and were admitted for at least 12 hours in the surgical intensive care unit. Sedation included overnight intravenous dexmedetomidine infusion from 22.00 to 06.00 am at minimum, via a central venous catheter or a peripheral venous line; (b) **I**ntervention: use of early sedation with dexmedetomidine including nocturnal low dose intravenous dexmedetomidine infusion, up to the dosage of 1.5 microgram per kilogram per hour; (c) **C**ontrol: received medication other than dexmedetomidine for the promotion of sleep quality. The other medications included but were not confined to propofol, morphine, or a placebo; (d) **O**utcomes: The primary outcome of interest was the incidence of delirium. The secondary outcome(s) included the evaluation of reduction in agitation and improved sleep quality. (e) **S**tudy type: Parallel group randomized controlled trials. Exclusion criteria included patients under the age of 18 years, non-surgical patients, non-ICU patients, non-ventilated patients, and the usage of the wrong measurement tools.

Data extraction

A modified standard data extraction form developed by Cochrane reviewers for randomized controlled trials (RCTs) was used. Data were extracted independently by the two investigators. A data extraction form was devised based on the review question and the pre-set PICOS criteria. Data were extracted on study design, setting, participants, intervention, comparator and study outcomes prevention of delirium, reduction in agitation, and sleep quality. For sleep quality, available data were extracted and recorded. Any differences that arose during the data extraction process were discussed and amended accordingly. Lead study authors were contacted for relevant and specific outcome data that were not evident from the published papers.

Quality assessment

We used the Cochrane collaborators domain-based evaluation tool for the assessment of the Risk of Bias (ROB). The ROB tool comprises seven corresponding domains of bias, namely sequence generation (selection bias), allocation sequence concealment (selection bias), blinding of participants and personnel (performance bias), blinding of outcome assessment (detection bias), incomplete outcome data (attrition bias), selective outcome reporting (reporting bias) and other potential sources of bias. Each domain was considered separately for each outcome and categorized into low risk, high risk, and unclear risk.

Statistical analysis and data synthesis

Studies that were similar in terms of population and outcomes were meta-analysed using software RevMan 5.4 and where this was not possible, the results were reported narratively. Meta-analysis was performed using the Mantel-Haenszel fixed-effect (FE) for pooled studies

with low heterogeneity or the random effect (RE) method and in cases of high level of heterogeneity. A simplified Cochrane approach was used in this review.

Results

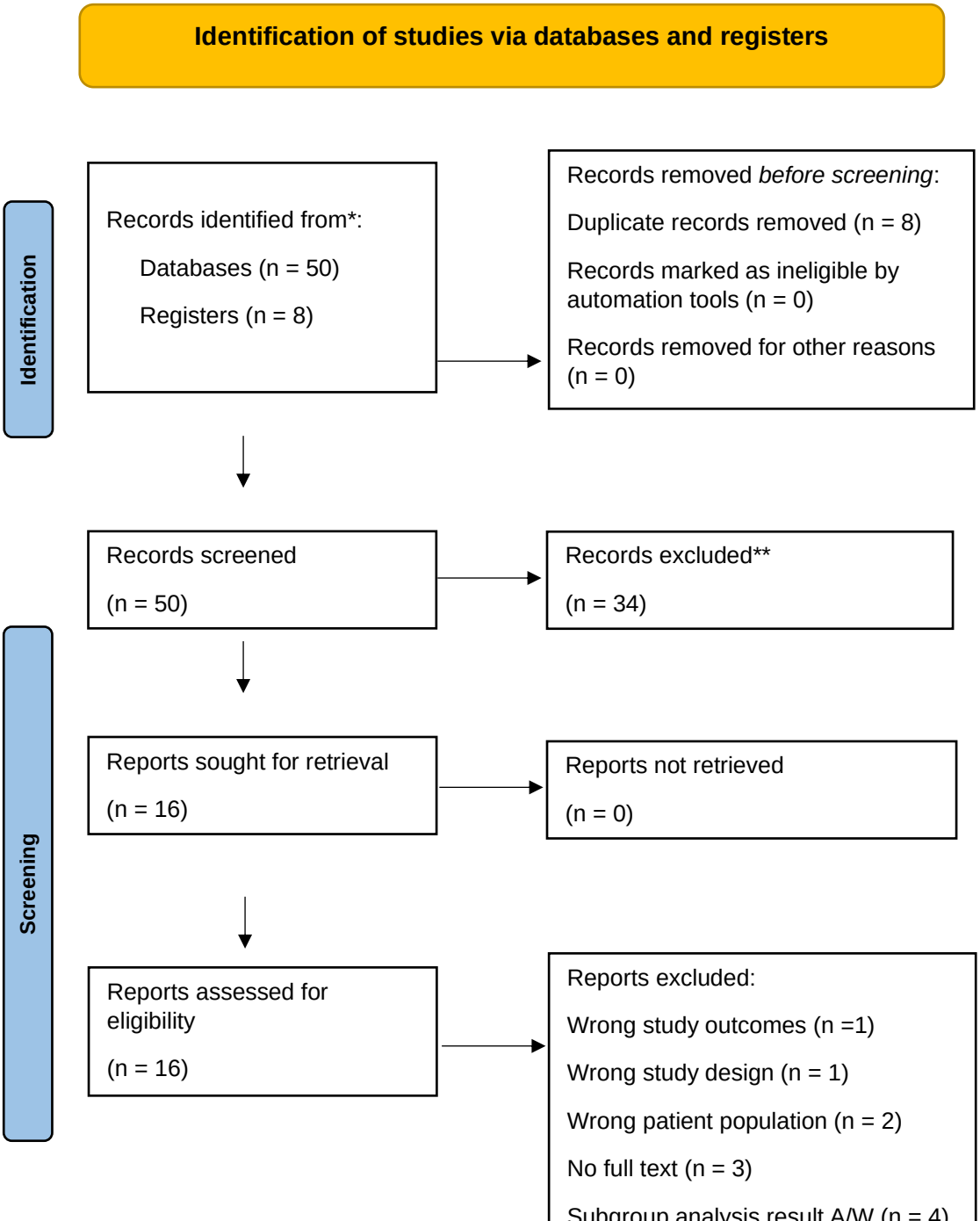
Identification of eligible studies

A total of 58 studies were yielded during the initial search, eight of which were duplicates and were removed. Following title and abstract screening on the remaining 50 studies, 34 were excluded as they did not fulfil the inclusion criteria. Sixteen studies were included for full-text screening and 12 were excluded on the basis of the review's exclusion criteria for the following reasons: wrong study outcomes (Elgebaly & Sabry 2018), wrong study design (Karren *et al.* 2016), wrong patient population (Wu *et al.* 2016, Sun *et al.* 2019), no full-text availability (Wan *et al.* 2011, Eremenko & Chernova 2013, Eremenko & Chemova 2014), and a mixed patient population that included surgical patients but did not report outcomes separately for the surgical patients, indicating a need for subgroup analysis (Reade *et al.* 2009, Riker *et al.* 2009, Ruokonen *et al.* 2009, Su *et al.* 2016, Winings *et al.* 2021). The primary authors of those eight studies with no full text and requiring further subgroup analysis were contacted via email. A response was received from one author (Su *et al.* 2016) and subgroup data were provided, which meant the study was eligible for inclusion. Consequently, 11 studies were excluded and five were included (Shehabi *et al.* 2009, Yang *et al.* 2015, Su *et al.* 2016, Li *et al.* 2017, Shehabi *et al.* 2019) (see Figure 1).

Study characteristics

Five studies (Shehabi *et al*. 2009, Yang *et al.* 2015, Su *et al*. 2016, Li *et al.* 2017, Shehabi *et al.* 2019) were included in the review with participants totalling 299, 79, 382, 285 and 1128 respectively. Three of the five studies (Yang *et al.* 2015, Su *et al.* 2016, Li *et al.* 2017) were conducted in China. The study by Shehabi *et al.* (2009) was conducted in Sydney and the

study by Shehabi *et al.* (2019) was conducted across eight countries including Australia, Ireland, Italy, Malaysia, New Zealand, Saudi Arabia, Switzerland, and the United Kingdom. All five studies were parallel group randomized controlled trials (see Table 1).



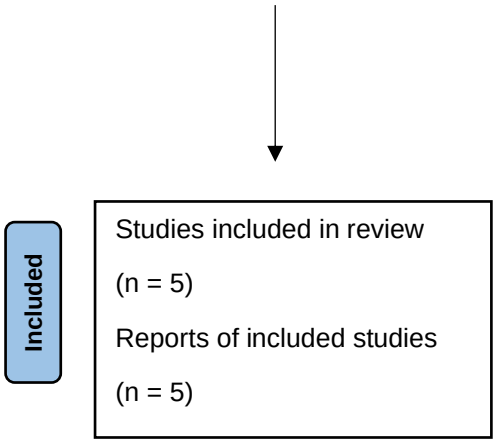


Figure 1: PRISMA Flow Diagram

Table 1: Summary characteristics of the included studies

Reference	Population	Intervention	Comparator	Outcome	Study Design
Shehabi (2009)	Age: ≥ 60 years Surgery: Cardiac surgery (CABG, valve surgery, and both)	Dexmedetomidine infusion of 0.1–0.7µg/kg/hr started without loading dose which was titrated per prespecified protocol to maintain target sedation and adequate analgesia. Infusion started within 1 hour of admission in the ICU and stopped either within 48hrs of admission, extubation, or with removal of chest drain.	Morphine as a comparator drug was infused at 10–70µg /kg/hr which was titrated per prespecified protocol.	Main outcome: Dexmedetomidine use did not reduce the incidence of delirium.	Parallel group RCT.
Yang (2015)	Age: 18 to 80 years. Surgery: Maxillofacial surgery with a microvascular free flap.	Patients received dex at 0.5µg/kg/hr until the operation was completed; infusions were continued at the rate of 0.2 to 0.7µg/kg/hr until 6:00 am the next morning. Infusion started in theatre and stopped with extubation next day in ICU.	Saline was used at a rate of 0.5µg/kg/hr until the operation was completed and continued at 0.2 to 0.7µg/kg/hr until 6:00 am the next morning.	Main outcome: Dex sedation reduces the incidence of agitation but does not change the overall incidence of agitation.	Parallel group RCT
Su (2016)	Age: ≥ 65 years Surgery: Noncardiac surgery.	IV dex infused at the rate of 0·1µg/kg/ hr, from admission on the day of surgery until 0800 hr. Infusion started within 1 hour of ICU admission and stopped next day at 08.00, post-operative day 1.	Placebo of 0·1µg/kg/hr was infused until 0800 h on postoperative day 1.	Main outcome: Low dose dex infusion significantly decreases the incidence of delirium.	Parallel group RCT
Li (2017)	Age: ≥ 60 years Surgery: Elective coronary artery bypass graft and/or valve replacement surgery.	The study drug dex was started firstly at a rate of 0.6µg/kg/hr for 10 minutes, then continued at a rate of 0.4µg /kg/h until the end of surgery. Post-surgery, continued at 0.1µg/kg/h. Infusion started in theatre and stopped with the end of mechanical ventilation.	Control drug 0.9% sodium chloride infused in operating room at the same rate as study drug and continued until the end of mechanical ventilation.	Main outcome: No significant difference noted between the two groups regarding the incidence of delirium.	Parallel group RCT
Shehabi (2019)	Age: ≥ 18 years. Surgery: Any surgery.	Dex administered as the sole sedating agent and was started at a dose of 1µg/kg/hr without a loading dose and adjusted to achieve a target RASS score. It was continued as required for up to 28 days after the initial randomization.	Usual cares were given propofol, midazolam, or other sedatives, as ordered by the treating doctor. Rescue dex was permitted for uncontrolled agitation only.	Main outcome: Dex was insufficient as sole agent to achieve clinically desired target sedation levels.	An open-label Parallel group RCT

Risk of bias

All five studies were found to be low risk of bias for selection bias (random sequence generation) and selective outcome reporting. Four were low risk of bias for selection bias (allocation concealment) and blinding of participants and personnel (Shehabi *et al*. 2009, Yang *et al.* 2015, Su *et al*. 2016, Li *et al.* 2017) and one was assessed as high risk of bias on these two domains (Shehabi et al. 2019). Three studies were low risk of bias for blinding of outcome assessment (Yang *et al.* 2015, Li *et al.* 2017, Shehabi *et al.* 2019), while two studies (Shehabi *et al.* 2009, Su *et al.* 2016) were categorized as unclear due to insufficient detail provided. Three studies were assessed as low risk of attrition bias (Shehabi *et al.* 2009, Su *et al.* 2016, Li *et al.* 2017) and two (Yang *et al.* 2015 and Shehabi *et al.* 2019) were unclear. For other biases, one was assessed as high risk (Shehabi *et al.* 2009), as this study reported that the Motor Activity Assessment Scale tool was used to mimic the unit's normal practice. Two (Yang *et al.* 2015, Shehabi *et al*. 2019) studies were considered unclear and two remaining studies were regarded as low risk of any other biases.

Results

- *Delirium*

Four of the five RCTs reported on the incidence of delirium outcome. There were 44/524 incidence of delirium in the dexmedetomidine group compared to 93/521 in the control group. The results indicated a statistically significant reduction in the incidence of delirium among patients who were on dexmedetomidine post-operatively compared to those on placebo or other medications (RR: 0.08, 95% CI -0.15 to -0.01, 4 studies, 1045 patients) (Figure 2).

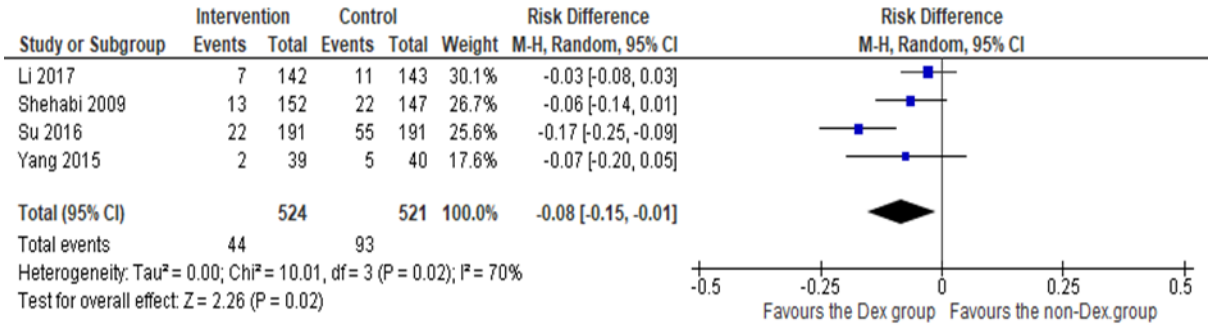


Figure 2: Forest plot on delirium (Random effect model)

- *Agitation*

Two studies (Yang *et al.* 2015, Su *et al.* 2016) reported on this outcome. A fixed effect model was used as there was no evidence of heterogeneity I^2 = 0%, both studies were RCTs with same intervention and intervention dose. There was no significant difference between the two groups (RR: 0.85, 95% CI 0.51 to 1.44, 2 studies, 779 patients). The study by Yang *et al.* (2015) made the highest contribution to the meta-analysis with a weight of 100%. (See Figure 3).

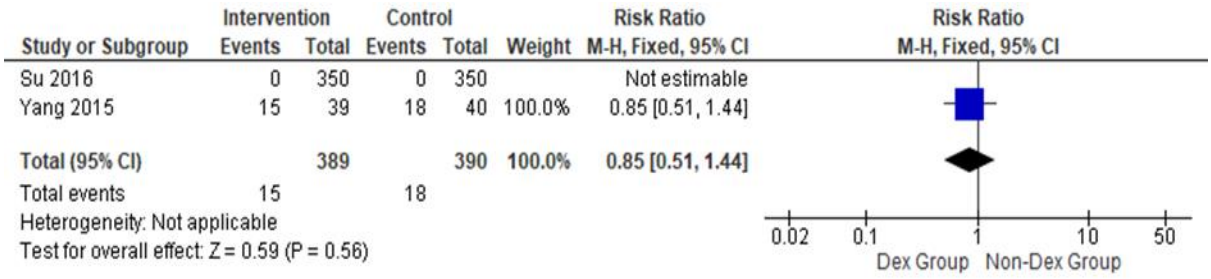


Figure 3: Forest plot on agitation (Fixed effect model)

One study (Li *et al*. 2017) assessed sedation or agitation using the RASS to determine the patient's status for delirium assessment. A patient was assessed as sedated or unarousable if the RASS score was -4 or -5, and the patient was recorded as comatose. At the end of study drug infusion there was no significant difference in the RASS scores between the two groups and the scores were similar (placebo group was (0 to -1) and the Dexmedetomidine group (0 to-2).

- *Sleep*

One researcher (Yang *et al.* 2015) reported on the outcome of sleep. They reported on sleep disruption with two events of sleep disruption being reported in the Dexmedetomidine group when compared to seven events in the control group. However, this finding was not statistically significant (p = 0.154). Additionally, sleep disruption or interruption cannot be measured as sleep quality. Hence no data specifically focusing on sleep quality was available.

On the other hand, two studies (Su *et al.* 2016, Li *et al.* 2017) assessed sleep with the numerical rating scale (NRS), an 11-point scale where 0 indicates the best sleep and 10 demonstrates the worst sleep, but neither reported the results numerically. Reporting narratively on the results, Su *et al.* (2016) found that subjective sleep quality was better in the dexmedetomidine group (median scores of 2) when compared to the control group (median scores of 4) for the first three days after surgery (all p-values <0.0001), indicating a statistically significant result. Conversely, the study by Li *et al.* (2017) reported the same daily score for both groups for subjective sleep quality for post-operative days one to five, with all the p-values >0.05 indicating no statistically significant difference between the two groups. Hence, the outcome result on sleep quality remains uncertain.

Discussion

The primary aim of the review was to assess the effectiveness of early sedation with dexmedetomidine including the overnight administration of dex infusion when compared to other medications in the prevention or reduction of delirium among post-operative patients in adult intensive care units. Five RCTs were included, with four out of five studies reporting on the incidence of delirium. They reported a statistically significant result of an overall increase in the prevention of delirium among patients who were on dexmedetomidine post-operatively. This outcome reflects the results from other similar systematic reviews. These systematic reviews consisted of 16 RCTs (Constantin *et al.* 2016), 16 RCTs (Fan *et al.* 2017), 18 RCTs (Duan *et al.* 2018), and 24 RCTs (Xiong *et al*. 2021) with a sample number of 1994 patients, 2568 patients, 3309 patients, and 3610 patients respectively. These systematic reviews revealed either a reduction in delirium incidences or decreased risk of delirium with the usage of dexmedetomidine infusion postoperatively, ultimately supporting this review's result of increased reduction in incidence of delirium. Similarly, the results of the primary outcome of this systematic review were also favoured by an American single-centre observational cohort study (Cheng *et al.* 2016) which included 505 adult patients following cardiac surgery with 283 in the intervention group with dexmedetomidine infusion and 222 in the control group with no dexmedetomidine infusion. With respect to the prevention of postoperative delirium, the researchers reported a reduced incidence rate of 7.21% in the intervention group compared to 10.95% in the control group (Cheng *et al.* 2016). While the study lends support to this systematic review's results, the non-randomized nature of the study limits the cause-effect relationship.

Furthermore, the result of the primary outcome of this systematic review supports the recommendation of the European Society of Anaesthesiology (Aldecoa *et al.* 2017) for the use of dexmedetomidine over other sedative agents such as benzodiazepines, despite the financial cost of dexmedetomidine being higher than other medications used in ICU (Aggarwal *et al.* 2020). However, the clinical patient benefits such as reduction in delirium, shortened duration of mechanical ventilation, and ICU length of stay and its associated cost reductions are thought to outweigh the high financial cost of dexmedetomidine (Aldecoa *et al.* 2017, Aggarwal *et al.* 2020). Moreover, the Society of Critical Care Medicine in their latest PADIS guidelines also recommended the shift to light sedation agents such as dexmedetomidine as the choice of sedation in ICU (Devlin *et al*. 2018). To provide further support to this thesis, a study by Pasero *et al.* (2018) consisted of a structured consensus of 17 intensivists from 17 Italian ICUs who were experienced and experts in PAD management, considered dexmedetomidine the first-line sedative. Though the conclusive data on the benefits of dexmedetomidine were still lacking and unsolved, the drug was considered beneficial and suitable for use across multiple clinical scenarios. Pasero *et al.* (2018) also reported that the prevalence of postoperative delirium increases with age. Three of the five studies included in this systematic review consisted of patients aged 60 and above, highlighting the possible sampling-related effect on the outcome. However, the more recent studies demonstrated that no corelation exists between dexmedetomidine and age (Shehabi *et al.* 2019, Lewis *et al.*

2022). Moreover, a 90-day mortality rate was noted to be higher in patients <65 years than in the older patients who were treated with dexmedetomidine (Shehabi *et al.* 2019, Burry & De Jong 2022).

Additionally, in our review, despite the statistically significant outcome, the clinical application of the findings may be hindered due to the high level of heterogeneity generated among the included studies and the methodological quality of some these. Different effects may have been generated by variation in the dose and duration among the study drugs, different assessment tools used by the researchers to measure outcomes in ICU, and frequency of assessment of delirium such as the CAM-ICU being measured once daily in most of the included studies which could lead to the possibility of missed cases, though this is unlikely to be of importance. Additionally, dexmedetomidine can induce bradycardia and hypotension, in which case, some clinicians may be reluctant to use it in practice, resulting in a gap between the recommendations and practice.

Two of the five studies included in this systematic review investigated the reduction in agitation (Yang *et al.* 2015, Su *et al*. 2016) which was one of the secondary outcomes of this review. One of the included studies (Su *et al.* 2016) had no events of agitation recorded, hence did not contribute to the meta-analysis in this review. The results indicated that there was minimal difference in agitation levels recorded between the intervention versus control groups and this result was not statistically significant ($p = 0.56$).

None of the included studies that measured sleep quality demonstrated a significant difference between the groups. This differs from a systematic review conducted by Huang *et al*. (2021) who reported improved sleep quality associated with dexmedetomidine infusion. They also reported that intraoperative or postoperative infusion of dexmedetomidine not only improves the quality of sleep but could also relieve post-operative pain. However, the authors concluded that postoperative outcomes of the effects of dexmedetomidine on sleep remains controversial at present but could benefit the patient when compared to other sedatives such as midazolam (Huang *et al.* 2021). Hence, the favourable outcome of this novel drug, dexmedetomidine on improving sleep remains something of an unknown.

Limitations

Most of the studies included in this systematic review were conducted in China and consisted of small sample numbers and settings. Additionally, most of the studies included patients aged 60 and above, an age category that tends to be at a greater risk of delirium. Moreover, multiple factors could have altered the review's outcome results such as the study drug dosages and duration, whether used as a sole agent or not, outcome assessment frequency and training of assessors, variation in instruments and its reporting methods, and the missing data from the authors who had not responded to the email requesting additional information and correspondence. The studies in this review consisted of surgical patients only. This deters the application of these outcome results for all critically ill patients, thereby indicating the need for a robust study including all ICU patients.

Implications for practice

This systematic review and meta-analysis reported a statistically significant positive outcome on the prevention of delirium in ICU in dexmedetomidine recipients compared to those who received other medications with the same intent. This finding supports the recommendations of reputable organizations and reports from the European Society of Anaesthesiology and the 36th International Symposium on Intensive Care and Emergency Medicine, respectively. Nurses play a vital role in the first-hand management of critically ill patients with delirium in day-to-day settings. Nurses are pioneers of leadership and change, implementing evidence-based care to prevent delirium, reduce agitation and promote sleep. The findings from this systematic review will support nurses in advocating for the introduction of light sedation agents such as dexmedetomidine over other high-risk agents. This will improve the quality of care for patients and contribute to the reduction of the incidence of delirium in the ICU setting.

Conclusion

The review indicated an overall reduction in the incidence of delirium among patients who were on dexmedetomidine post-operatively compared to control groups. This suggests that the use of dexmedetomidine may contribute toward the prevention of delirium in the ICU setting. Further research is warranted to evaluate the potential benefits of dexmedetomidine in the prevention of agitation and improving sleep quality.

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