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# Effects of a Clonidine Taper on Dexmedetomidine Use and Withdrawal in Adult Critically Ill Patients—A Pilot Study

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**Objectives:** Prolonged use of dexmedetomidine has become increasingly common due to its favorable sedative and anxiolytic properties. Hypersympathetic withdrawal symptoms have been reported with abrupt discontinuation of prolonged dexmedetomidine infusions. Clonidine has been used to transition patients off dexmedetomidine infusions for ICU sedation. The objective of this study was to compare the occurrence of dexmedetomidine withdrawal symptoms in ICU patients transitioning to a clonidine taper versus those weaned off dexmedetomidine alone after prolonged dexmedetomidine infusion.

**Design:** This was a single-center, prospective, double cohort observational study conducted from November 2017 to December 2018.

**Setting:** Medical-surgical, cardiothoracic, and neurosurgical ICUs in a tertiary care hospital.

**Patients:** We included adult ICU patients being weaned off dexmedetomidine after receiving continuous infusions for at least 3 days.

**Interventions:** Patients were either weaned off dexmedetomidine alone or with a clonidine taper at the discretion of the providers.

**Measurements and Main Results:** The primary outcome was the incidence of at least two dexmedetomidine withdrawal symptoms during a single assessment within 24 hours of dexmedetomidine discontinuation. Time on dexmedetomidine after wean initiation and difference in medication cost were also evaluated. Forty-two patients were included in this study: 15 received clonidine (Group C) and 27 weaned off dexmedetomidine alone (Group D). There was no significant difference in the incidence of two or more withdrawal symptoms between groups (73% in Group C vs 59% in Group D;  $p = 0.51$ ). Patients in Group C spent less time on dexmedetomidine after wean initiation compared with patients in Group D (19 vs 42 hr;  $p = 0.02$ ). An average cost savings of \$1,553.47 per patient who received clonidine was observed. No adverse effects were noted.

**Conclusions:** Our study demonstrated that patients receiving clonidine were able to wean off dexmedetomidine more rapidly, with a considerable cost savings and no difference in dexmedetomidine withdrawal symptoms, compared with patients weaned off dexmedetomidine alone. Clonidine may be a safe, effective, and practical option to transition patients off prolonged dexmedetomidine infusions.

**Key Words:** adrenergic alpha-2 receptor agonists; clonidine; dexmedetomidine; hypnotics and sedatives; substance withdrawal syndrome; symptom assessment

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Dexmedetomidine, an alpha-2 adrenergic agonist, is Food and Drug Administration-approved for sedation in the ICU for up to 24 hours of continuous infusion (1). Its safety and efficacy have been demonstrated in studies for up to 5 days of use (2, 3), with bradycardia and hypotension being the most frequently cited adverse effects (1). In practice, dexmedetomidine is often used for prolonged periods of time due to its favorable sedative, anxiolytic, and analgesic characteristics (4–9). Recent data, however, suggest that abrupt discontinuation of prolonged

dexmedetomidine infusions may be associated with withdrawal symptoms such as agitation, tachycardia, hypertension, and other hypersympathetic conditions (10–22). Previous studies have defined prolonged dexmedetomidine infusion as infusion greater than 72 hours, after which withdrawal symptoms have been cited with dexmedetomidine wean (15, 16). In a preliminary study conducted by our research team, the incidence of withdrawal symptoms when weaning off prolonged dexmedetomidine infusions was as high as 64% (22). Given this potential risk for withdrawal, gradual weaning of dexmedetomidine may preclude transfer out of the ICU and increase overall healthcare costs for some patients due to ICU level of care and high drug acquisition cost (23).

Clonidine, another alpha-2 adrenergic agonist, has been used in recent years to transition patients off of dexmedetomidine infusions (24–28). Although dexmedetomidine and clonidine share similar pharmacologic properties, clonidine's high oral bioavailability, longer half-life, ease of administration, and lower medication cost provide a convenient and tolerable taper option for patients on prolonged dexmedetomidine infusions (29, 30). However, no studies have specifically assessed the effect of clonidine on the incidence of dexmedetomidine withdrawal symptoms after prolonged exposure to dexmedetomidine in adult critically ill patients. The objective of this study was to compare the incidence of dexmedetomidine withdrawal symptoms in ICU patients transitioning to a clonidine taper versus those weaned off dexmedetomidine alone after at least 3 days of continuous infusion.

## MATERIALS AND METHODS

This was a single-center, prospective, double cohort study conducted from November 2017 to December 2018. All adult patients in the medical-surgical, cardiothoracic, or neurosurgical ICUs that were being weaned off dexmedetomidine after at least 3 days of continuous infusion were considered for study enrollment. A minimum of 3 days of dexmedetomidine administration was used based on previous definitions of prolonged infusion and based on the time after which withdrawal symptoms have been cited in previous reports (15, 16). Exclusion criteria included patients with active substance or medication withdrawal and patients with primary neurologic disease which could interfere with the assessments. This study protocol was approved by the Institutional Review Board prior to initiation of the study.

Patients were divided into two groups: those who received clonidine in order to transition off of dexmedetomidine (Group C) and those who were weaned off dexmedetomidine alone (Group D). The decision to use clonidine was at the discretion of the medical team and was not influenced by study investigators. Of note, clonidine was used off-label in this context for ICU sedation (24–29). The standard clonidine taper used at our institution is outlined in **Appendix A** (Supplemental Digital Content 1, <http://links.lww.com/CCX/A391>) based on a previous study by Gagnon et al (24). This includes a standard decrease in dexmedetomidine rate by 25% with each clonidine dose. Adjustments to the clonidine taper could be initiated by the medical team based on sedative response and hemodynamic effects and were consistent with adjustments made in the previous study by Gagnon et al (24). Immediate-release clonidine was the only formulation used in our study due to previous

data supporting equivalent pharmacokinetics via enteral and sublingual route (31). Patients without enteral access were administered clonidine via sublingual route to ensure continuity of dosing. For patients weaning off dexmedetomidine alone, nurses weaned dexmedetomidine as clinically able based on each patient's Richmond Agitation-Sedation Scale (RASS) goal and in alignment with our institutional dexmedetomidine guide (**Appendix B**, Supplemental Digital Content 2, <http://links.lww.com/CCX/A392>).

Demographic and baseline characteristics were collected for all patients, including age, sex, weight, Sequential Organ Failure Assessment score, type of ICU, reason for ICU admission, median baseline RASS score, time on dexmedetomidine prior to study enrollment, and concomitant sedatives used prior to study enrollment. Baseline RASS was defined as the median daily RASS score 2 days prior to wean initiation in efforts to control for failed wean attempts in the 24 hours prior to enrollment.

Withdrawal assessments were conducted by study investigators for all patients after the first dose of clonidine was administered for patients in Group C and after a dexmedetomidine wean was initiated for patients in Group D (the beginning of the wean period). Repeat assessments were conducted for each patient at least 3 hours apart at random until 24 hours after dexmedetomidine discontinuation (the end of the wean period) to account for residual effects with prolonged clearance (based on dexmedetomidine's half-life). Informed consent was waived for this study, as signs of medication withdrawal, pain, and sedation are regularly assessed at our institution in our critically ill patients. Simultaneous withdrawal assessments were performed by a subset of investigators to evaluate inter-rater reliability during withdrawal assessments.

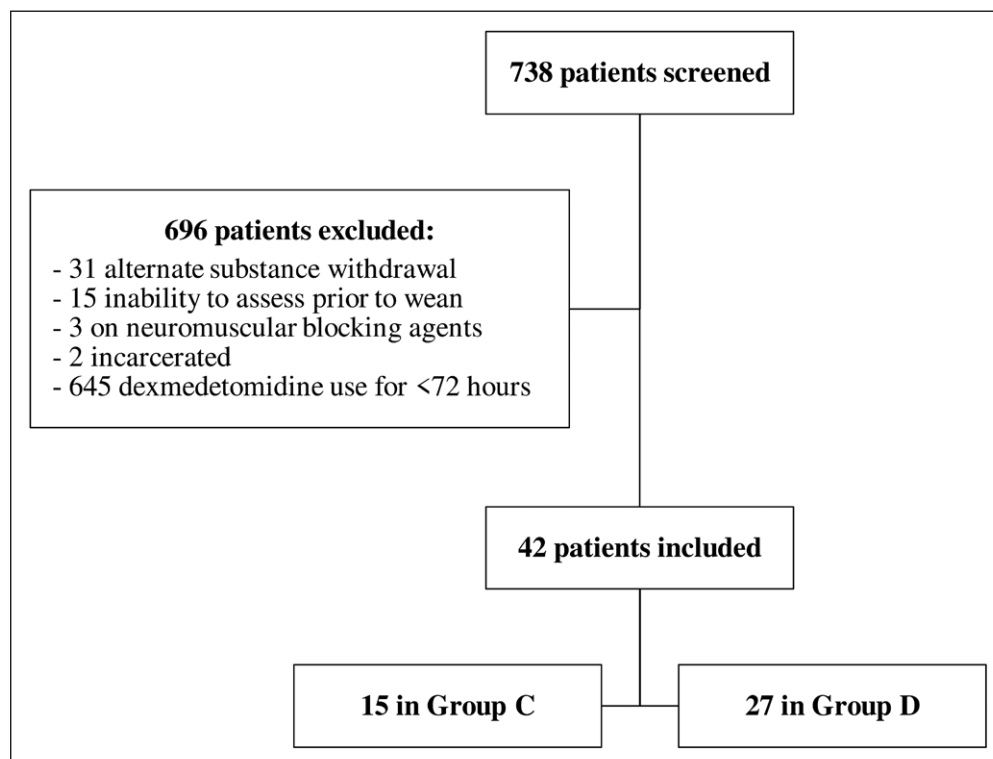
The primary outcome was the incidence of at least two dexmedetomidine withdrawal symptoms during a single assessment within 24 hours of dexmedetomidine discontinuation. In the absence of a validated instrument for iatrogenic withdrawal in the hospital setting, withdrawal symptoms included in this study were chosen based on previous literature describing dexmedetomidine withdrawal (10–22). The endpoint of two or more symptoms was deemed to be clinically significant given the presence of these symptoms would prompt an increase in dexmedetomidine infusion rate or prevention of wean in clinical practice at our institution. The five withdrawal symptoms evaluated were as follows: (1) agitation as per a RASS greater than +1, (2) delirium as per a positive Confusion Assessment Method for the ICU assessment, (3) withdrawal as per a Withdrawal Assessment Tool Version 1 (WAT-1) score greater than 2, (4) tachycardia defined as heart rate (HR) greater than 90 beats per minute (beats/min), and (5) hypertension defined as systolic blood pressure (SBP) greater than 140 mm Hg or mean arterial pressure greater than 90 mm Hg. Although the WAT-1 (**Appendix C**, Supplemental Digital Content 3, <http://links.lww.com/CCX/A393>) is only validated to evaluate opioid and benzodiazepine withdrawal in pediatric patients, it includes several hypersympathetic symptoms that overlap with dexmedetomidine withdrawal in adult patients and has been successfully used to evaluate dexmedetomidine withdrawal in pediatric studies (17, 21, 26, 32, 33). Secondary outcomes included incidence of individual withdrawal symptoms, incidence of pain (as defined by a Numerical Pain Rating Scale  $\geq 4$  for patients able

to self-report or a Critical Care Pain Observation Tool  $\geq 3$  for those who were not), oral morphine equivalents (OMEs) administered during the wean period (calculated based on our institutional standard equivalency chart for all opiates, described in **Appendix D**, Supplemental Digital Content 4, <http://links.lww.com/CCX/A394>), use of concomitant propofol, antipsychotics, benzodiazepines, and ketamine during the wean period, average daily dexmedetomidine infusion rate throughout the total infusion duration, time to successful dexmedetomidine discontinuation, difference in drug cost using average wholesale price, time to transfer out of the ICU, and incidence of hypotension (SBP < 90 mm Hg) or bradycardia (HR < 60 beats/min) at any time during the wean period.

Descriptive statistics were used to summarize baseline demographic information. Analysis of the primary outcome and other categorical variables was performed using the chi-square or Fisher exact test. Secondary continuous outcomes were assessed using either the Student *t* test or Wilcoxon rank-sum test. Inter-rater reliability during simultaneous assessments was analyzed using the Krippendorff alpha score. All *p* values less than or equal to 0.05 were considered significant using an alpha value of 0.05. All statistical analyses were conducted using Stata Version 15 (StataCorp LP, College Station, TX).

## RESULTS

Out of the 738 patients screened, 42 patients were included in the final analysis: 15 in Group C and 27 in Group D (**Fig. 1**). Baseline characteristics are shown in **Table 1**. Of note, patients in Group C had a higher median daily RASS score 2 days prior to wean initiation (0 vs -1; *p* = 0.04) and were more likely to have received antipsychotics prior to study enrollment (8 vs 2 patients; *p* = 0.005).



**Figure 1.** Patient flowchart. Group C = patients administered clonidine taper, Group D = patients weaned off dexmedetomidine alone.

**Table 2** presents outcomes in both groups. There was no statistically significant difference between groups in the incidence of at least two dexmedetomidine withdrawal symptoms during a single assessment within the wean period (73% in Group C vs 59% in Group D; *p* = 0.27). In the subset of patients with simultaneous withdrawal assessments, inter-rater reliability was good (0.89) between assessors. A total of 54 simultaneous assessments were performed. In evaluating individual withdrawal symptoms (**Fig. 2**), patients in Group C exhibited more agitation per a RASS greater than +1 compared with patients in Group D (40% vs 11%; *p* = 0.05). There was no statistically significant difference in positive WAT-1 scores between groups. Across both groups, the most common symptoms recorded from the WAT-1 tool were loose stools, fever, and agitation. Notably, patients in Group C had a higher median number of withdrawal assessments conducted than patients in Group D (3.7 vs 2.7; *p* < 0.01).

There was no difference in the incidence of significant pain scores between groups (47% in Group C vs 41% in Group D; *p* = 0.75). However, patients in Group D had a trend toward higher OME use in the 48 hours prior to wean initiation as well as during the first and second days of the wean as compared to patients in Group C, although this was not statistically significant (**Table 3**). There was no difference between groups in the use of propofol, antipsychotics, benzodiazepines, or ketamine during the wean period. Patients in Group C had a higher average daily dexmedetomidine rate in microgram/kilogram/hr ( $\mu\text{g}/\text{kg}/\text{hr}$ ) compared with patients in Group D. Total infusion dose in  $\mu\text{g}/\text{hr}$  was not significantly different between groups.

Patients in Group C spent significantly less time on dexmedetomidine after wean initiation compared with patients in Group D (19 vs 43 hr; *p* = 0.02). Furthermore, 93% of patients in Group C were able to discontinue dexmedetomidine within 24 hours of clonidine initiation. This difference in time on dexmedetomidine resulted in an average drug cost savings of \$1,553.47 per patient who received clonidine when taking into account the medication cost of dexmedetomidine and clonidine alone. Costs of nursing titration and monitoring were not included in this assessment. Patients in Group C had a trend toward longer median ICU length of stay than patients in Group D, although this was not statistically significant (22.7 vs 17 d; *p* = 0.3). There was no difference in time to ICU discharge after wean initiation (7.2 in Group C vs 7 d in Group D; *p* = 0.69). There were no reported events of bradycardia or hypotension during the wean period for all patients in either group.

**TABLE 1. Demographics and Baseline Characteristics**

Variables	Patients Administered Clonidine Taper (n = 15)	Patients Weaned Off Dexmedetomidine Alone (n = 27)	p
Age (yr), median (IQR)	58 (43–66)	54 (45–66)	0.93
Male sex, n (%)	11 (73)	16 (60)	0.73
Weight (kg), median (IQR)	86.9 (67.3–94.1)	91.6 (78.9–101.1)	0.19
Sequential Organ Failure Assessment score, median (IQR)	9.5 (7–12)	10 (8.5–14)	0.19
Type of ICU, n (%)			
Medical/surgical	10 (67)	13 (48)	0.34
Cardiovascular	3 (20)	8 (30)	0.72
Neurologic	2 (13)	6 (22)	0.69
Reason for ICU admission, n (%)			
Respiratory	7 (47)	9 (33)	0.51
Cardiac surgery	1 (7)	5 (19)	0.4
Cardiovascular	2 (13)	4 (15)	1
Abdominal surgery	2 (13)	3 (11)	1
Infection/sepsis	3 (20)	3 (11)	0.65
Neurologic	0	2 (7)	0.53
Trauma	0	1 (4)	1
Median daily Richmond Agitation-Sedation Scale score 2 d prior to wean initiation, median (IQR)	0 (–1 to 0.5)	–1 (–2 to –0.25)	0.04
Time on dexmedetomidine prior to first assessment (hr), median (IQR)	167.1 (115–217.1)	113.5 (91.1–204)	0.60
Propofol used within 2 d prior to wean initiation, n (%)	9 (60)	12 (44.4)	0.35
Antipsychotics used within 2 d prior to wean initiation, n (%)	8 (53.3)	2 (7.4)	0.005
Benzodiazepines used within 2 d prior to wean initiation, n (%)	2 (13.3)	2 (7.4)	0.58
Ketamine used within 2 d prior to wean initiation, n (%)	1 (6.7)	6 (22.2)	0.15

IQR = interquartile range.

## DISCUSSION

This is the first study to evaluate the effect of clonidine on dexmedetomidine withdrawal symptoms in adults being weaned off of prolonged dexmedetomidine infusions. Given there was no difference in the incidence of two or more withdrawal symptoms with the use of clonidine versus when weaning off dexmedetomidine alone, clonidine can be considered an effective alternative to dexmedetomidine for sedation wean after prolonged dexmedetomidine infusion.

No studies have evaluated clonidine's impact on dexmedetomidine withdrawal symptoms in adult patients. Lardieri et al (26) used the WAT-1 assessment to evaluate the effect of clonidine on dexmedetomidine withdrawal in pediatric patients. They found no difference in WAT-1 scores between groups, although patients in the clonidine group displayed a trend toward fewer elevated WAT-1 scores while weaning from dexmedetomidine. Our study also found no difference in WAT-1 scores or its components between groups. Notably, several components of the WAT-1 assessment were not seen at all in this study, suggesting

that the WAT-1 may not be an accurate measure of dexmedetomidine withdrawal in adult ICU patients. Since the completion of our study, Capillean et al (34) confirmed this finding when they evaluated the validity and reliability of the WAT-1 in critically ill adults and found that it was not a valid tool for assessing iatrogenic withdrawal syndrome in this patient population. In a post hoc analysis of our data excluding WAT-1, we found no difference in the incidence of two or more withdrawal symptoms between groups ( $p = 0.56$ ), further suggesting the WAT-1 may not be a necessary component of future withdrawal assessments.

A few studies have assessed the safety and efficacy of transitioning from dexmedetomidine to clonidine for ICU sedation after short-term use of dexmedetomidine (< 48 hr). Terry et al (25) conducted a retrospective assessment of 26 adult patients and found that over 65% of patients were able to safely discontinue short-term dexmedetomidine as early as 8 hours after initiating clonidine for ICU sedation. Gagnon et al (24) conducted a prospective study of 20 adult patients and found that 75% of patients were able to successfully transition from short-term

**TABLE 2. Withdrawal Symptoms, Sedatives Administered, and Patient Length of Stay**

Variables	Patients Administered Clonidine Taper (n = 15)	Patients Weaned Off Dexmedetomidine Alone (n = 27)	p
Incidence of ≥ 2 withdrawal symptoms, n (%)	11 (73)	16 (59)	0.51
Individual withdrawal symptoms, n (%)			
Heart rate > 90 beats/min	12 (80)	20 (74)	1
Confusion Assessment Method for the ICU +	11 (73)	17 (63)	0.73
Systolic blood pressure > 140 mm Hg	6 (40)	8 (30)	0.55
RASS > +1	6 (40)	3 (11)	0.05
WAT-1 > 2	2 (13)	1 (4)	0.29
Individual WAT-1 components, n (%)			
Pre stimulus			
RASS > 0	6 (40)	4 (15)	0.13
Loose/watery stools	3 (20)	13 (48)	0.1
Temperature > 37.8°C	3 (20)	8 (29)	0.72
Vomiting	1 (7)	2 (7)	1
Diaphoresis	1 (7)	3 (11)	1
Moderate-severe repetitive movements	0	1 (4)	1
Moderate-severe tremor	0	0	
Yawning or sneezing	0	0	
Post stimulus			
Moderate-severe startle to touch	0	0	
Increased muscle tone	0	0	
2+ min to return to calm state	0	0	
5+ min to return to calm state	0	0	
Number of assessments conducted per patient, mean ± SD	3.7 ± 1.2	2.7 ± 0.8	<0.01
Incidence of pain during the wean period, n (%)	7 (47)	11 (41)	0.75
Propofol used during the wean period, n (%)	5 (33)	8 (30)	1
Antipsychotics used during the wean period, n (%)	9 (60)	10 (37)	0.2
Benzodiazepines used during the wean period, n (%)	3 (20)	3 (11)	0.34
Ketamine used during the wean period, n (%)	1 (7)	4 (15)	0.64
Average daily dexmedetomidine rate <sup>a</sup> (µg/hr), mean ± SD	75 ± 28.1	66.5 ± 30	0.37
Average daily dexmedetomidine rate <sup>a</sup> (µg/kg/hr), mean ± SD	0.9 ± 0.3	0.7 ± 0.3	0.03
Time on dexmedetomidine after wean initiation (hr), median (IQR)	19 (9.5–23)	43 (14–74.7)	0.02
ICU length of stay (d), median (IQR)	22.7 (16.3–35)	17 (10.7–33.5)	0.3
Time to ICU discharge after dexmedetomidine wean initiation (d), median (IQR)	7.2 (4–20)	7 (3.1–20)	0.69

IQR = interquartile range, RASS = Richmond Agitation-Sedation Scale, WAT-1 = Withdrawal Assessment Tool 1.

<sup>a</sup>Average daily dexmedetomidine rate was calculated based on the infusion rate throughout the total infusion duration (not limited to the wean period).

dexmedetomidine to clonidine within 48 hours with no significant differences in pain, sedation, or hemodynamic variables. These findings are similar to those of our study, where patients in Group C were able to transition off of dexmedetomidine in a

median of 19 hours, with no differences in withdrawal symptoms or adverse effects.

In terms of efficacy, there was a higher incidence of elevated RASS scores in Group C when compared with Group D. This

**TABLE 3. Total Daily Oral Morphine Equivalents**

Time	Patients Administered Clonidine Taper (n = 15)	Patients Weaned Off Dexmedetomidine Alone (n = 27)	p
2 d prior to wean, median (IQR)	105 (60–321.8)	435 (37.5–1,022)	0.17
1 d prior to wean, median (IQR)	105 (30–427.5)	390 (45–1,002)	0.14
Wean day 1, median (IQR)	120 (18.75–445)	390 (48.7–726.5)	0.36
Wean day 2 <sup>a</sup> , median (IQR)	71 (26.5–371)	309 (52.5–891)	0.15
1 d after dexmedetomidine off, median (IQR)	37.5 (15–132)	30 (0–561.5)	0.29
2 d after dexmedetomidine off, median (IQR)	45 (11.25–96.5)	22.5 (0–276)	0.4

IQR = interquartile range.

<sup>a</sup>Patients who weaned off dexmedetomidine on day 1 were not included in wean day 2.

may be in part due to the higher median RASS scores in Group C prior to dexmedetomidine wean initiation, also reflected by the greater antipsychotic use at baseline in this group. Additionally, patients in Group C had a higher average daily dexmedetomidine dose administered of 0.9 µg/kg/hr compared with 0.7 µg/kg/hr in Group D. In a previous analysis by our research team, we found a greater risk for withdrawal symptoms in patients receiving peak dexmedetomidine doses greater than 0.8 µg/kg/hr and cumulative daily doses of dexmedetomidine greater than 12.9 µg/kg/d (22). The higher RASS scores may have been impacted by greater cumulative dosing per body weight of dexmedetomidine in Group C. Despite this finding, no difference in two or more withdrawal symptoms was found, potentially reflecting the efficacy of clonidine in circumventing additional withdrawal symptom development.

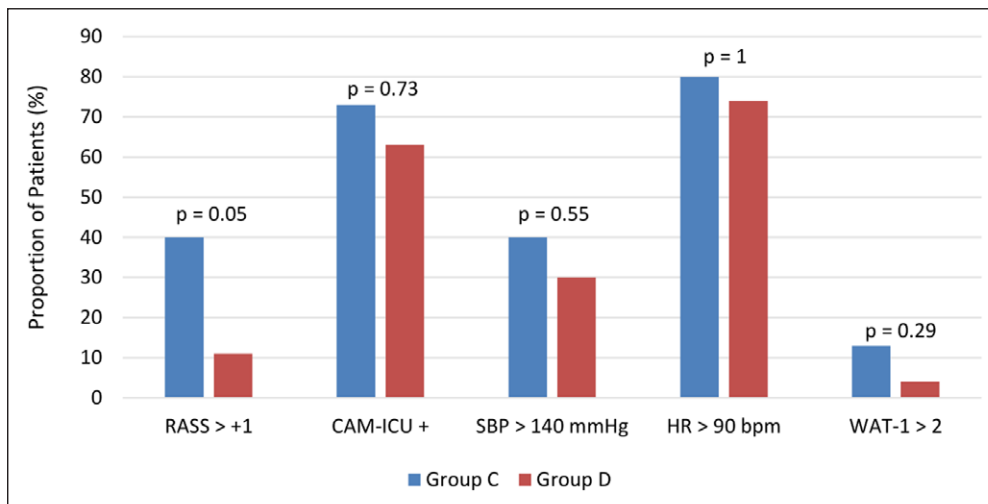
Although there was no difference in pain scores between groups, there was a trend toward higher OME used during the wean period by patients in Group D, which may also have impacted level of sedation in the patients weaning off of dexmedetomidine alone compared with patients receiving clonidine. Both dexmedetomidine and clonidine have been described in the literature as

having opioid-sparing qualities (6–9, 35–38). Mariappan et al (38) found intraoperative dexmedetomidine to have a greater opioid-sparing effect than preoperative single-dose clonidine in spinal surgery patients. It is possible that the difference in analgesic effects in our study was impacted by differences in dexmedetomidine and clonidine dosing. Our diverse patient sample also included surgical patients, who may require more analgesic medications than nonsurgical patients. Given the small sample size, a small difference in surgical patients between groups may have contributed to the difference in OME requirements. Finally, patients in Group C were assessed more frequently than patients in Group D, which may have increased the chance of investigators detecting withdrawal symptoms in Group C.

Based on the difference in duration of dexmedetomidine after wean initiation, we calculated an average cost savings of \$1,553.47 per patient that received clonidine. This only includes medication cost and does not take into account the additional costs associated with dexmedetomidine, such as a dedicated ICU bed with close monitoring and titration. Thus, the decreased duration of dexmedetomidine infusion upon initiation of clonidine may be economically significant. Although a difference in time to ICU discharge

with the use of clonidine was not observed, this study may have been underpowered to detect such a difference. The initiation of clonidine at provider discretion may also have impacted the ability to effectively evaluate this measure. Larger, randomized studies are needed to evaluate the impact of clonidine on ICU and hospital length of stay.

There were several limitations to this study. First, the study included a small sample size at a single institution. Although this is the largest prospective study to date, it may have been underpowered to detect a subtle change in withdrawal symptoms. There was also potential for selection bias in this study, as providers decided which patients were administered



**Figure 2.** Individual dexmedetomidine withdrawal symptoms. CAM-ICU = Confusion Assessment Method for the ICU, Group C = patients administered clonidine taper, Group D = patients weaned off dexmedetomidine alone, HR = heart rate, RASS = Richmond Agitation-Sedation Scale, SBP = systolic blood pressure, WAT-1 = Withdrawal Assessment Tool 1.

clonidine based on their own risk assessment for withdrawal or based on previous difficulty with weaning dexmedetomidine. Patients in Group C had higher median RASS scores at baseline and had a higher average daily dose of dexmedetomidine over the study period. For these reasons, the patients in Group C may have had a higher predisposition for withdrawal symptoms. It is unclear if earlier initiation of clonidine would result in fewer withdrawal symptoms with the use of a clonidine taper. A larger, randomized controlled trial may be beneficial to evaluate the true incidence of dexmedetomidine withdrawal symptoms with and without the use of clonidine.

Strengths of this study include its prospective design focused on an adult patient population, as most of the literature looking at dexmedetomidine withdrawal is retrospective and includes pediatric patients. Our study also evaluated concomitant medications to control for confounders and assessed a variety of potential withdrawal symptoms. Despite our negative findings, we believe the lack of difference in withdrawal symptoms clinically valuable given the potential cost savings associated with the transition to clonidine. In an era of high healthcare costs, the cost savings analysis was conservatively performed using medication costs alone to provide an estimate of minimum potential savings.

## CONCLUSIONS

This study found no difference in the incidence of two or more dexmedetomidine withdrawal symptoms in patients being weaned off of prolonged dexmedetomidine infusions either alone or with a clonidine taper. Patients receiving clonidine were able to wean off dexmedetomidine more rapidly than those who did not receive clonidine, which led to a considerable cost savings with no difference in adverse effects. Clonidine may be a safe and effective medication for more rapid weaning of dexmedetomidine in patients on prolonged infusions. A larger randomized controlled trial may be beneficial to confirm these results.

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