Dexmedetomidine use in palliative care patients with intractable symptoms: A retrospective review

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Background

- Palliative care patients often have difficult and intractable symptoms such as pain, anxiety, nausea, vomiting, dyspnea, and delirium.
- Midazolam continuous subcutaneous infusion (CSCI) is standard of practice in Fraser Health (FH) to manage refractory symptoms, but it results in deep sedation.
- Dexmedetomidine provides proportional rousable sedation, allowing patients to awaken alert, follow directions, and communicate with loved ones.
- Evidence describing clinical experience and outcomes with dexmedetomidine for palliative care symptoms is lacking.

Objectives

- To describe the patient characteristics and clinical experience with CSCI dexmedetomidine used for intractable pain and/or delirium symptoms in FH adult palliative complex care units (PCCU).
- To describe the initial dose, titration parameters, final dose, dose duration, dosing regimen, and monitoring parameters for CSCI dexmedetomidine.
- To describe efficacy (changes in pain and symptom scores) and safety (side effects) outcomes with the use of CSCI dexmedetomidine in palliative patients
- To describe the use of adjunctive medications for pain, delirium and sedation, used before and after CSCI dexmedetomidine initiation.
- To describe the reasons recorded for cessation of CSCI dexmedetomidine

Methods

- **Design:** Retrospective, observational chart review
- **Population:** Adults aged 19 years or older who were admitted to a FH PCCU (ARH, BUH, or SMH) and were prescribed and received CSCI dexmedetomidine between January 2017 to August 2019
- **Sample:** 20 patient charts meeting the criteria were analyzed

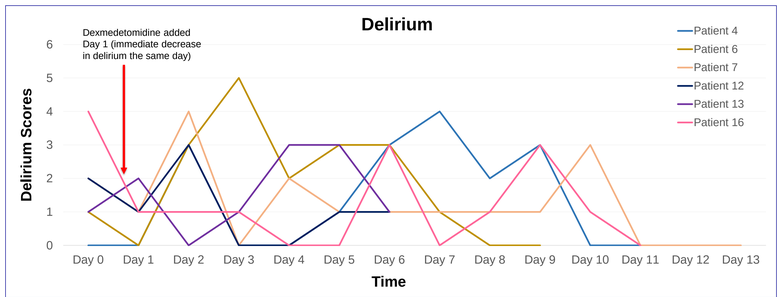

Figure 1. Delirium Symptom Scores

Age, y (mean ± SD)	50 (± 13)
Sex, female (%)	60
Weight, kg (mean ± SD)	59 (± 16)
LOS, days (mean ± SD)	28 (± 12)
Vitals prior to dexmedetomidine	
Heart rate (mean ± SD)	106 (±13)
SBP (mean ± SD)	119 (±26)
DBP (mean ± SD)	74 (±12)
Palliative Performance Scale (PPS) prior to dexmedetomidine (mode)	30
Medical Condition (%)	
Metastatic gastrointestinal cancer	30
Metastatic lung cancer	25
Metastatic gynecological cancer	25
Metastatic sarcoma	15
Metastatic genitourinary cancer	5
Intractable symptom for initiating dexmedetomidine (%)	
Pain	90
Delirium	30
Dyspnea	25
Anxiety	15
Reason for discontinuation of palliative admission (%)	
Death	95
Discharge	5

Table 1: Baseline Characteristics

Length of use, days (mean ± SD)	8.7 (± 4.8)
Dose, mcg/kg/h (mean ± SD)	
Initial	0.19 (± 0.05)
Maximum	1.07 (± 0.29)
End	0.86 (± 0.44)
Cause of discontinuation (%)	
Death	80
Failure to manage intractable symptoms	5
Other (side effects)	15

Table 2: Characteristics of Dexmedetomidine Use

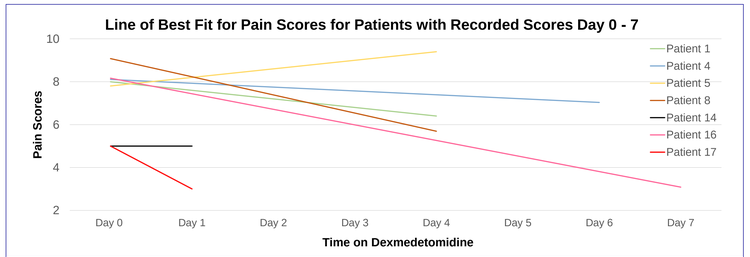

Figure 2. Pain Symptom Scores for Patients with Scores Day 0 - 7

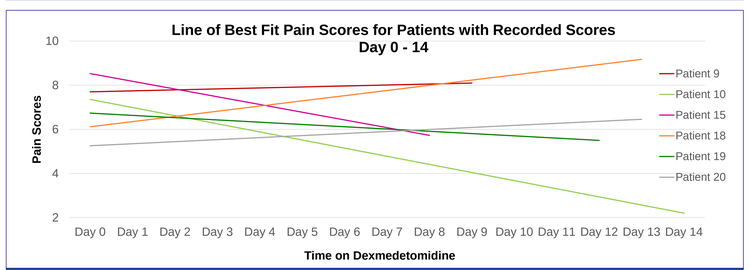

Figure 3. Pain Symptom Scores for Patients with Scores Day 0 - 14

	Patients with Incidence (n=20)	Number of Episodes (Mean ± SD)	Hours to 1st Incidence of Side Effect (Mean ± SD)
Hypotension (SBP < 90mmHg)	17	2.1 (± 1.3)	40 (± 59.1)
Hypertension (SBP > 150mmHg)	2	2.5 (± 0.7)	10.9 (± 12.2)
Bradycardia (HR < 50 beats/min)	2	1 (± 0)	26.9 (± 5.8)
Tachycardia (HR > 110 beats/min)	7	1.5 (±1.3)	46.3 (± 78.7)
Bradypnea (RR< 50 breaths/min)	3	2.7 (±2.9)	17 (± 9.1)

Table 3. Incidences and Timing of Side Effects of Dexmedetomidine

Results

- For PRN medications started before dexmedetomidine and continued throughout, the overall usage of these medications were:
  - 41% reduction, 47% increase, 12% same
- For regularly scheduled medications started before dexmedetomidine and continued throughout, the overall usage of these medications were:
  - 3% reduction, 35% increase, 62% same
- PRN medications had a net increase of 4 orders added (5%) while regular medications had a net increase of 16 orders added (22%)
- 45% of patients had ≥50% of days with RASS 0 to -2 (correlates to rousable sedation; score of 0 indicates patient is alert and calm, score of -2 indicates light sedation but briefly awakens to voice for <10 second
- 55% of patients had a new initiation of midazolam CSCI while on dexmedetomidine

Limitations

- Small sample size; patients had varied length of stay and clinical course
- Retrospective design
  - Some data points hard to collect as based on subjectivity of the recorder
  - Incomplete results due to limited and inconsistent documentation

Conclusions

- Dexmedetomidine provided benefit in managing intractable pain symptoms while allowing patient to remain sedated but rousable
- Initial decrease in delirium symptoms
- Despite clinical deterioration, only 47% of PRN medication usage and 35% of regularly scheduled medication usage was increased
- On average, CSCI tolerated for > 8 days

** References available upon request*

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