Alberta Health Services

Journal Watch – Pharmacy & Medication (other) & Pediatric PC – May 2018

Article:
The Use of Dexmedetomidine in Pediatric Palliative Care: A Preliminary Study

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Review:

Strengths: Studying a novel agent in the palliative care setting provides new preliminary information. Uses a validated scale (FLACC). Attempted to document provider's and families perceptions on effectiveness.

Weaknesses: Low numbers of patients. Observational cohort – lack of control group with heterogeneous population. FLACC may not be the most appropriate tool for all patients studied. Doesn't indicate reasons for stopping infusion or comment on survival. Did not intend to record adverse events. Completely different patient population (peds vs adults).

Relevance to Palliative care: Novel agents are developed for use if different medical settings and they may have utility for symptom management in the palliative setting. Dexmedetomidine is an agent with primarily anxiolytic properties, along with sedative and anti-nociceptive properties. There is good rationale to believe it may have benefit for symptoms such as anxiety, dyspnea, pain and delirium, especially in patients for whom symptoms are refractory to conventional therapies. This study attempts to explore this question and demonstrates that its use outside of ICU is both feasible and of potential benefit.

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Table 1. Characteristics of Nine Patients Who Received Dexmedetomidine Infusions for Palliative Care during End of Life

Patient	*Age*	*Sex*	*Race*	*Primary diagnosis*	*Treatment location*	*Code status*	*ETT*	*Dex infusion duration (days)*	*Reason for dexmedetomidine*
1	17 Years	F	White	Chronic myelogenous leukemia	ICU, floor	Limited resuscitation[a]	N	2	Inadequate pain control, agitation
2	14 Years	F	White	B-cell lymphoma	Floor	Limited resuscitation	N	1	Inadequate pain control, agitation
3	8 Years	F	Other	Hepatoblastoma	ICU	Limited resuscitation	N	2	OIH
4	1.4 Years	M	Black	Shwachman–Diamond syndrome (SCT)	ICU	Limited resuscitation	Y	19	Inadequate pain control
5	17 Years	F	Black	Sickle cell anemia (SCT)	ICU	Limited resuscitation	Y	111	Inadequate pain control[b]
6	7 Months	M	White	Complex congenital heart disease	ICU	Limited resuscitation	N	2	Inadequate pain control
7	3 Weeks	M	Other	Complex congenital heart disease	ICU	Limited resuscitation	Y	5	Inadequate pain control[c]
8	6 Months	F	Black	Congenital diaphragmatic hernia	ICU	Limited resuscitation	Y	4	Inadequate pain control
9	17 Years	F	Black	Renal medullary carcinoma	ICU	DNR/AND	N	1	Inadequate pain control, agitation

[a]Limited resuscitation indicate that resuscitation measures were restricted to airway suction, supplemental oxygen, and administration of fluids and blood products.
[b]Patient 5 had a history of allergies to morphine and ketamine.
[c]Patient 7 developed chest rigidity after administration of fentanyl.
AND, allow natural death; DNR, do not resuscitate; ETT, endotracheal tube; F, female; ICU, intensive care unit (cardiac or medical-surgical); M, male; OIH, opioid-induced hyperalgesia; SCT, stem cell transplant.

Table 2. Drugs Used for Symptom Management before Initiation of Dexmedetomidine

Patient	*Opioid*	*Anti-inflammatories*[a]	*Ketamine*	*Benzodiazepine*	*Methadone*	*Pregabalin*
1	Y	Y	N	Y	Y	N
2	Y	Y	N	N	Y	N
3	Y	N	Y	Y	Y	N
4	Y	Y	N	Y	Y	N
5	Y	Y	Y	N	N	Y
6	Y	N	N	Y	Y	N
7	Y	N	N	Y	N	N
8	Y	N	N	Y	N	N
9	Y	N	N	Y	Y	N

[a]Anti-inflammatory drugs include steroids and nonsteroid anti-inflammatory drugs.

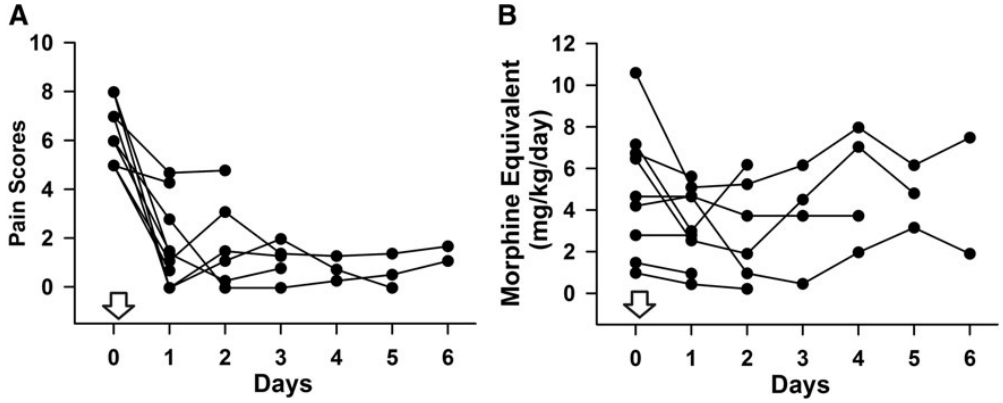

FIG. 1. Pain scores and morphine-equivalent intake before and after dexmedetomidine infusion. The down arrow in **(A)** and **(B)** indicates the start of dexmedetomidine infusion. **(A)** The points indicate pain scores immediately before (0) and after (daily average) dexmedetomidine infusions. Overall, over days, dexmedetomidine infusions were associated with significant decreases in pain scores ($p < 0.001$). **(B)** The points indicate daily oral morphine-equivalent intake before (0) and after dexmedetomidine infusion. Overall, over days, dexmedetomidine infusions were associated with a trend toward decreases in daily morphine-equivalent intake ($p = 0.088$).