

## **An Abstract of the NSCPM course project:**

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## **A descriptive literature review on the use of Dexmedetomidine in adult palliative care patients**

### **Background:**

Dexmedetomidine is an  $\alpha_2$ -adrenergic agonist typically used for co-operative sedation of intensive care patients and patients prior to and/or during surgical and other procedures. It has sedative, anxiolytic, sympatholytic, and analgesic-sparing effects, and minimal depression of respiratory function. The most common side effects are cardiovascular: hypertension, hypotension and bradycardia. Official route of administration is intravenous, but it has been administered intranasally, buccally, subcutaneously and intrathecally, too. These alternative, off-label routes of administration make dexmedetomidine an interesting possibility for use in the field of Palliative Medicine, also outside the hospital environment. Dexmedetomidine is also shortly mentioned in Finnish national guidelines for palliative and end of life care as an option for inducing palliative sedation. My course project was to prepare a descriptive literature review on the use of dexmedetomidine with adult palliative care patients.

### **Methods:**

Literature search was done in September 2018 in Pubmed and Embase databases with the terms: dexmedetomidine AND palliat\*. An additional search from Pubmed was made with the terms: (dexmedetomidine AND palliat\*) OR (dexmedetomidine AND end of life) OR (dexmedetomidine AND hospice) OR (dexmedetomidine AND withhold\*) OR (dexmedetomidine AND refractory) OR (dexmedetomidine AND intractable). From 192 records, 5 review articles, 6 case reports, 2 surveys and 2 crossover studies were found and described in the review.

### **Results:**

In the case reports, dexmedetomidine has most often been used to relieve symptoms of intractable pain, anxiety and delirium at the end of life. Also, the palliative care patients were easily arousable and co-operative during the sedation. Only in one case dexmedetomidine had been administered by other route than intravenously – namely subcutaneously. One of the two crossover studies compared the pharmacokinetics and cardiovascular, sympatholytic and sedative effects of subcutaneously and intravenously administered dexmedetomidine in healthy volunteers. The conclusion was that dexmedetomidine is relatively efficiently absorbed after SC administration and causes attenuated cardiovascular effects compared to IV administration. The other study investigated the effect of intrathecal dexmedetomidine on spinal morphine analgesia in patients with refractory cancer pain and concluded that intrathecal administration of dexmedetomidine and morphine reduced the morphine consumption in patients with refractory cancer pain. No articles with intranasal administration of dexmedetomidine in the context of adult palliative care were found. The surveys showed that dexmedetomidine has been used as a sedative for heart failure patients in Japan and for palliative sedation in the US among some hospice and palliative care clinicians. The review articles conclude that dexmedetomidine is one possibility to be used for the management of delirium and in palliative sedation, but give no recommendation or instruction what route of administration or dose to use.

### **Conclusion:**

There are very few published studies on the use of dexmedetomidine in adult patients in palliative medicine and no conclusion can be made. Further research is needed.