Title : The Infusion of Opioids During Terminal
Withdrawal of Mechanical Ventilation
in the Medical Intensive Care Unit
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Reference : J Pain Symptom Manage 2011;42:44e51. _ 2011

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Abstract : Context. Most deaths in intensive care units occur after limitation or withdrawal
of life-sustaining therapies. Often these patients require opioids to assuage suffering; yet, little has been documented concerning their use in the medical
intensive care unit.

Objectives. To determine the dose and factors influencing the use of opioids
in patients undergoing terminal withdrawal of mechanical ventilation in this setting.

Methods. Data were prospectively collected from 74 consecutive patients expected to die soon after extubation. The doses of morphine, effect on time to
death, and relation of dose to diagnostic categories were analyzed.

Results. The mean (standard deviation) dose of morphine given to patients during the last hour of mechanical ventilation was 5.3 mg/hour. Patients dying
after extubation received 10.6 mg/hour just before death. Immediately before
extubation, the dose correlated directly with chronic medical opioid use and
sepsis with respiratory failure and inversely with coma after cardiopulmonary

resuscitation or a primary neurological event. After terminal extubation, the final
morphine dose correlated directly with the presence of sepsis with respiratory
failure and chronic pulmonary disease. The mean time to death after terminal
extubation was 152.7 ±229.5 minutes without correlation with premorbid diagnoses. After extubation, each 1 mg/hour increment of morphine infused
during the last hour of life was associated with a delay of death by 7.9 minutes
(P =0.011).

Conclusion. Premorbid conditions may influence the dose of morphine given
to patients undergoing terminal withdrawal of mechanical ventilation. Higher
doses of morphine are associated with a longer time to death.

Strengths : Prospective study design,
use of behaviour pain scale in non-verbal patients.

Weakness : Small number of patients
Heterogeneous group of non-cancer patients
Symptom burden of patients pre and post extubation was not clear.

Relevance to Palliative Care : Morphine may have the potential to extend life in the setting of terminal extubation if used at appropriate doses.
It is Important to document the intent of the treatments/interventions in the patients' charts.