

# A Pilot Study Investigating the Effects of Music Therapy on Sedation and Analgesic Requirements in Mechanically Vented Patients

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# A Pilot Study Investigating the Effects of Music Therapy on Sedation and Analgesic Requirements in Mechanically Ventilated Patients

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## BACKGROUND / INTRODUCTION

Music therapy (MT) has been increasingly used as a non-pharmacological medication for critically ill patients. Critically ill patients requiring mechanical ventilation are susceptible to a multitude of stressful experiences including fear, anxiety, discomfort, thirst, immobility, dyspnea, confusion, communication problems, and the inability to relax (Wong, Lopez-Nahas, & Molassiotis, 2001).

Although MT has been shown to be effective in ameliorating distress, reducing anxiety, inducing relaxation and improving physiological responses in patients on mechanical ventilation, much work remains to extend the intervention and examine its potential in reducing sedation and analgesic requirements in this population.

Lower sedation requirements can lead to less time on the ventilator, quicker recovery, and reduced cost.

## METHODS

**Purpose:** The purpose of this study was to determine whether MT, compared to undisturbed resting periods significantly reduced pharmacological sedation requirements in mechanically ventilated patients

**Study Location:** Trauma/Neuro ICU at Lehigh Valley Health Network Cedar Crest, Allentown, Pennsylvania

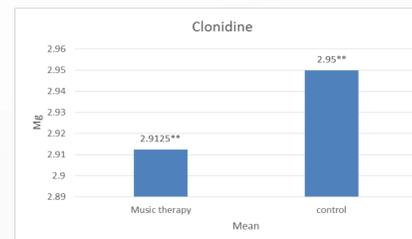
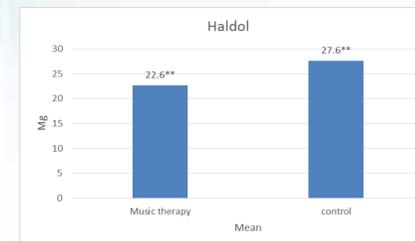
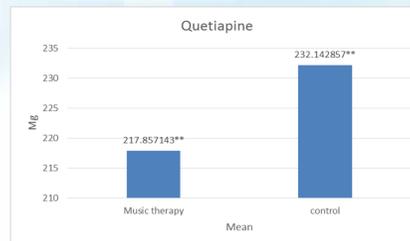
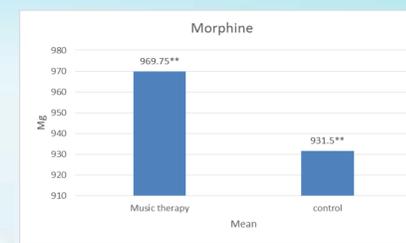
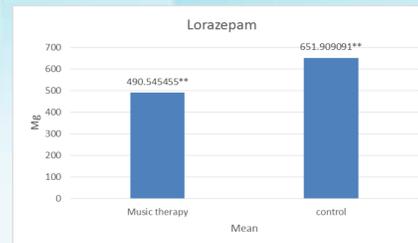
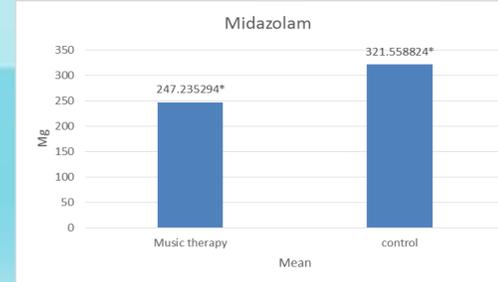
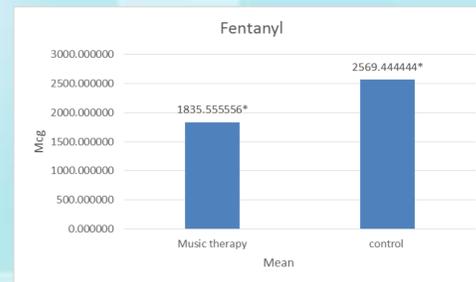
**Study Demographic:** 27 participants enrolled in a 2.5 year period

**Inclusion Criteria:** 18 years of age or older; admitted to the TNICU trauma related injuries; required assistance of mechanical ventilation including: full-vent support, trach, C-Pap and Bi-Pap, trach Mask; Glasgow Come Scale (GCS) of 9 or above for 24 hours prior to enrollment; required intermittent sedation, able to understand and sign the informed consent form (ICF) or have a legally authorized representative (LAR) who can provide the ICF.; music preference known by family at the time of consent

**Exclusion Criteria:** Presentation of neurological deficit with a GCS less than or equal to 8; radiologic evidence of severe head injury with a GCS less than or equal to 8; continuous sedation that required propofol, pentobarbital, or paralysis; diagnosis of dementia; known hearing impairment of use of a hearing aid; music preference was not known; the individual required the support of mechanical ventilation indefinitely

**Set-up:** Each patient would receive both a MT session and an undisturbed resting period (RP) on alternating days. Music was delivered via headphones of an Mp3 player. Each session lasted one hour at a minimum of two sessions per day at least five hours apart.

## OUTCOMES



(\*p<0.05)

(\*\*not statistically significant)

## RESULTS

The graphs show the mean dosage of each medication given during the MT intervention and during the undisturbed RP (control). The dosage requirements of the seven drugs used for pain and sedation were measured and only Fentanyl and Midazolam showed to be administered significantly less during the MT sessions compared to the RP. Additionally, less morphine, lorazepam, quetiapine, haloperidol, and clonidine were administered during MT when compared to RP but the difference did not reach statistical significance.

## CONCLUSIONS

Of the seven medications evaluated during the study, Fentanyl and Midazolam were administered significantly less during MT when compared to RP. Although the results were not consistent across the board possibly due to trauma patients being a heterogeneous population, this study does show promise for using music therapy to help reduce the amount of sedatives given to trauma ICU patients. Due to limitations such as the limited amount of eligible patients along with each patient being their own control, further research using these implications should be done.

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