Music medicine: A post-operative adjunct

Anesthesia Research Rounds
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Outline

- Overview of current literature
- Identified research opportunity
- Proposed pilot
  - PICOT
  - Methodology
Introduction

- Music medicine as an adjunct to anesthesia

- Literature has looked at the adjuvant effects of music medicine for:
  - Pain management
  - Anxiolysis
Overview

- Key findings for pain management
  - Data from Cochrane has been equivocal and vastly heterogeneous
  - Exception in acute post-operative

- Bottom Line
  - Lowering of pain intensity levels and opioid requirements **BUT** magnitude of benefit uncertain

Overview

- Key findings for anxiolysis
  - Data from Cochrane review, data also vastly heterogenous
  - Effects of music on anxiety shows some decrease in anxiety as measured by a STAI-S
  - Physiological outcomes positive in CAD patients

- Bottom Line
  - Clinical significance uncertain

Music interventions for improving psychological and physical outcomes in cancer patients.
Overview

- Use of music pre-operatively has predominantly focused on:
  - Pain and anxiety relief
  - Delivered passively in set-timed intervals

  - Patients for ambulatory surgery who listened to music prior to operation reported lower levels of state anxiety
  - Physiological outcomes did not differ
Overview

- Use of post-operative music medicine
  - More frequently studied
  - Use from POD#0 – POD#3
  - Effective in reducing pain and opioid consumption but not suitable for primary method of pain relief

  - Patients for total knee arthroplasty who listened to music reported statistically significant decrease in pain and anxiety
Overview

• Why study post-operative anxiety?

  • Post-operative anxiety positively correlated with pre-operative state anxiety, post-operative pain, high pain rating index, and negative future perception
Potential Avenues of Research

- Focus on immediate post-operative effects i.e. In PACU for ambulatory surgeries

- Study the “dosing” effect of music intervention
  - Most studies use a defined 20-30 minute intervention

- Analyzing the influence of personality trait
Study Direction

1. What is the influence of **anxiety traits** on perceived pain and anxiety in patients who listen to music compared to those who do not?

2. Is there an incremental music medicine **dose-effect relationship** on experienced pain and anxiety in patients who listened to music for prolonged periods compared to those during a set interval?

3. Is there a difference in **satisfaction** with postoperative hospital experience in patients who listened to music compared to those who do not?
Proposed Pilot Study

- The effects of post-operative patient administered music medicine on reported pain, anxiety, and patient satisfaction
Proposed pilot: PICOT

• Population:
  • 18-65 year old patients at Hamilton General Hospital undergoing shoulder arthroscopy
    • Drs’ Ristevski - verbal interest obtained
  • Day surgery patients requiring general anesthetic
  • ASA I-III

• Exclusion Criteria:
  • Allergy to opioid medications
  • Hearing impairment
  • Language barrier
  • Admission to ICU post-operatively
  • Hemodynamically unstable
Proposed pilot: PICOT

• **Intervention:**
  - Music medicine
    - 30 minute session in PACU
    - Followed by PRN use of music while in PACU and Same Day Surgery (SDS)
    - Music is patient chosen and brought from home on day of surgery

• **Control**
  - No music, standard of care
    - 30 minute session of headphones only in PACU
Proposed pilot: PICOT

- Primary outcome measures
  - Initial STAI-T scores
  - VAS and STAI-S scores for anxiety
  - VAS for pain
  - Patient satisfaction via survey

- Secondary outcomes measures
  - BP, HR, SpO2
  - Total analgesic required in PACU
  - Time to discharge – from hospital / SDS
  - Nursing satisfaction and impression of intervention

- Timeframe
  - POD#0 – while in PACU and SDS
Survey

• Administered at discharge to determine
  • Overall satisfaction with post-operative experience
  • Patients’ perceived benefits with music intervention with regards to pain and anxiety
  • Preference to not have listened to music

• Modified survey
  • Similar to that used after the centralized pre-operative clinic was opened at MUMC
  • In process — working with Bev Barbato
Method

Enroll 100 patients in preoperative clinic

- Consented and instructed to bring music of choice to day of procedure
- STAI-T performed: Patient categorized as low or high anxiety
- Randomized within each category to music or no music
Method

Enroll 100 patients in pre-operative clinic

High Anxiety Trait
- Randomize
  - MUSIC
  - No Music

Low Anxiety Trait
- Randomize
  - MUSIC
  - No Music
**Method**

- **High Anxiety Trait**
  - Music
  - No Music

- **Low Anxiety Trait**
  - Music
  - No Music

**First intervention**

- Minimum 30 minutes of music/no music
- Intervention initiates in Phase I/II of recovery as determined by Aldrete Scoring (before discharge from PACU)
- STAI-S and VAS for anxiety measured pre- and post-intervention
- VAS for pain measured pre and post intervention
Method

Subsequent interventions:

• PRN use of music by music group
  • Performed in PACU and SDS
  • Length is not limited
  • Start and end of each session is recorded by patient
  • VAS pre- and post- intervention for pain and anxiety
Method

At SDS discharge

• Administer final STAI-S on both groups
• Administer final VAS for pain and anxiety on both groups
• Both groups fill satisfaction survey
• Nursing staff from PACU and SDS to fill survey (whenever patient is discharged from their service)
Method

Data Collection

• BP, HR, SpO2 is collected at:
  1. First intervention
  2. Trended throughout the stay from the chart
  3. Discharge from SDS
Summary

- The effects of post-operative patient administered music medicine on reported pain, anxiety, and patient satisfaction

- Unique considerations
  - Focus on immediate post-operative effects
  - Music intervention is delivered in a defined and PRN manner
  - Analyzing the influence of personality trait
Thank you!