

The Analgesic Properties of a Music Intervention in the Post Anesthesia Care Unit

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Problem

Inadequate management of severity and duration of acute post-operative pain in the post anesthesia care unit (PACU) is a significant risk factor for persistent pain and discharge delays from the PACU.¹⁻⁴

The analgesic effects of music intervention have demonstrated decreased pain scores and increased patient satisfaction.

Clearly defining the effects of music intervention in the PACU is a neglected topic of investigation.

Purpose of the Study

The purpose of this study was to: 1) determine whether the addition of music to the post-operative pain protocol is an effective approach to mitigate pain in the PACU for patients undergoing total joint replacement surgery, and 2) measure the effect of the addition of music on reducing PACU length of stay (LOS).

Methodology

- Research Design: A prospective, randomized control trial.
- Setting: Pennsylvania Hospital PACU
- Sample Size: 134 participants undergoing unilateral, total hip or knee replacement and receiving general or spinal anesthesia
- Intervention:
 - Participants were recruited in the pre-operative holding area on the day of surgery by the principal investigators.
 - Music was selected by the patient following the informed consent process.
 - Patients were randomized either to the intervention group or the control group.
 - Patients in the intervention group received music in addition to the standard pharmacological protocol while the control group received only the standard pharmacological protocol.
 - Measured outcomes were change in visual analog pain scores and LOS.
 - Paired t-test were used with significance set to $p < 0.05$.

Results

	Intervention (N=68)	Control (N=66)	P Value
Pain on admission, mean (SD)	0.97 (2.60)	0.94 (2.49)	0.944
Pain on discharge, mean (SD)	1.31 (1.99)	2.39 (2.46)	0.006*
Change in pain, mean (SD)	0.34 (2.75)	1.45 (2.85)	0.023*
Length of stay (minutes), mean (SD)	161.03 (57.50)	158.77 (58.21)	0.822

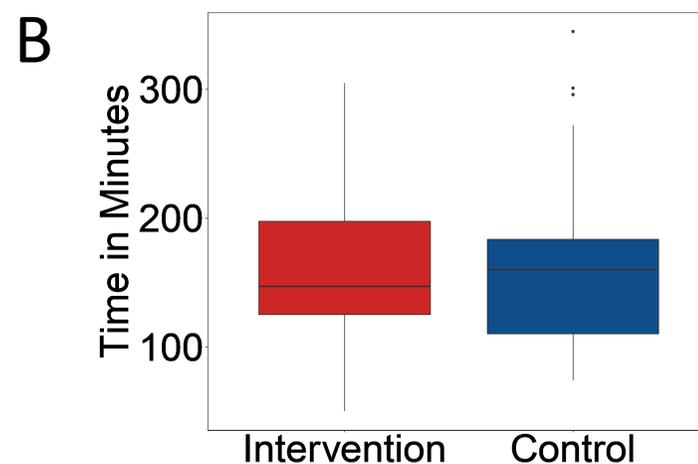
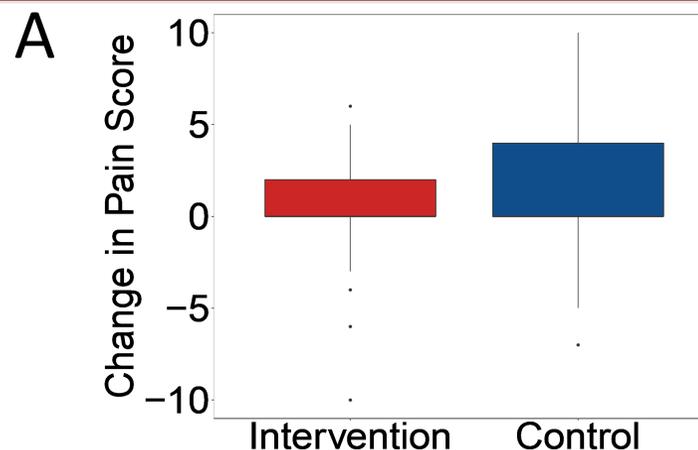


Figure A. Boxplot illustrating that a t-test found the mean change in pain scores were significantly worse in the control group (1.45-points) compared to the intervention group (0.34-points) ($p=0.023$). Figure B. t-test found no difference in PACU LOS.

The dark line represents the median, the box represents the interquartile range, and the dots represent outliers.

Results

- In this cohort (N=134), 50.7% (68) received the intervention and 49.3% (66) were in the control group.
- Groups were balanced across clinical characteristics.
- Paired t-tests showed that pain scores for the control group worsened by an average of 1.45-points (95% CI: 0.75, 2.15; $p < .001$) compared to 0.34-points in the intervention group was not significant ($p=0.314$) as scores went from 1 out of 10 to 1.4 out of 10.
- The difference between the intervention and control groups' pain scores was statistically significant, indicating that while the control group's pain scores worsened, participants in the intervention group experienced no substantial differences in pain scores over time ($p=0.023$).
- No statistically significant difference was noted in average PACU LOS between groups (Figure).

Discussion

- The addition of music to the standard post-operative pain protocol demonstrated a lower average pain score upon discharge from the PACU.
- The absence of a difference in LOS may be due to confounding variables (e.g. general vs spinal anesthesia or a difference in voiding time).

Further Implications for Perianesthesia Practice

Further opportunities exist to test the effects of music intervention on patient and clinical outcomes immediately following surgery. Our results provide estimates for pain and PACU LOS to determine sample sizes for future randomized controlled trials. Future studies should evaluate the effect of music interventions as a function of different surgical procedures and anesthetic modalities.

References

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