Music and Anxiety in the Preoperative Setting

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Abstract

Patients in the preoperative setting experience varying levels of anxiety, currently this anxiety is most often treated with pharmacologic intervention. Patients can have adverse reactions to anxiolytic medication. This study aims to find out if patients can be treated with music instead. After a review of the most up to date literature available, it was found that music in the preoperative can reduce anxiety and improve vital signs values while eliminating the potential adverse effects of pharmacological intervention.

Introduction

The great philosopher Pythagoras is considered the founder of music therapy, he believed that music contributed to better health; often prescribing music along with a specific diet to restore and maintain homeostasis of the body (Nilsson, 2008). In the Crimean war of the mid 1800's Florence Nightingale utilized the power of music to help heal the soldiers laying in the hospital wards. She noted that difference types of music had different outcomes in the healing process, wind instruments with continuous sound produced better results over other instruments that did not produce continuous sound (Nilsson, 2008). Invention of the phonograph in the late 1800's enabled hospitals to play recorded music. In 1926, the National Association for music in hospitals was established (Nilsson, 2008). Studies have shown that soft, slow, low-pitched tunes have therapeutic effect. A rhythm of 60 to 80 beats per minute and not louder than 60 decibels has also been shown to relax and relieve pain (Kipnis, 2006). The idea of music as an intervention for anxiety rests on its ability to induce relaxation throughout the autonomic nervous system (Cooke, 2005). Neurotransmitters are occupied through the auditory stimulation of music resulting in a diversion of feelings of anxiety, pain, and fear and a more positive experience for the patient (Cooke, 2005). Perceptual responses are mediated through music stimuli to promote the reduction of stress and anxiety. The purpose of this study is to test the hypothesis that music can be used to efficiently reduce the levels of anxiety of patients undergoing surgery, irrespective of the complexity of the procedure, previous exposure to anesthesia, and patient's age and gender. Secondly, if music is shown to lower the levels of anxiety experienced, what effect will this have on said patient's vital signs such as heart rate, blood pressure, and respiratory rate?

Methods and Procedure

In total, 100 subjects will be tested: 50 males and 50 females. Randomized controlled trials will be performed with 50% of the males and 50% percent of the females organized into control group 1. The State-Trait Anxiety Questionnaire will be completed three separate times; once as soon as they arrived in the preoperative waiting area, a second time right before surgery, and a third time after surgery. These patients will not be given sedatives nor exposed to music. Their vitals will be measured three separate times in the same manner as described above. The vitals are blood pressure, heart rate, and respiratory rate. The experimental group will be composed of the remaining 50 participants and will be designated as group 2; they will be instructed to bring music that they prefer to listen to. In this group, the State-Trait Anxiety Questionnaire and vitals will be measured in the same way as the control group; once as soon as they arrive in the preoperative waiting area, a second time right before surgery, and a third time after surgery. Lower scores on the questionnaire and lower vital sign values correlate with lower anxiety levels through a direct relationship.

Results

Intervention with music is expected to result in a 60% percent reduction of anxiety levels in the experimental group versus no reduction in anxiety levels for the control group, this is measured through the anxiety questionnaire and vital sign values. It is expected that in group 2, 15 males and 15 females report that listening to music helps lower their anxiety levels. These same patients have improved vital sign values as well. Overall, these findings would be significant because it shows that music has a positive effect in lowering anxiety levels and in normalizing patients' vital signs.

Discussion

The study concludes that it is expected that music reduces preoperative anxiety. The findings suggest that patients exposed to music displayed lower levels of anxiety according to the State-Trait Anxiety Questionnaire and their improved vital sign values. Gender does not influence the results.

Conclusion

Patients often experience anxiety in the preoperative period, even minor procedures produce levels of anxiety that have detrimental effects and affect postoperative recovery. This can increase their risk of physiological complications with adverse outcomes (Lee, 2004). Levels of anxiety differ between men, women, and children and is greatly linked to the patient's personal history. It can also be attributed to the fear of an unfamiliar environment, fear of death and/or disfigurement, and loss of control. Increased levels of anxiety are linked to an increase in patient requirement of intraoperative anesthetic; and have also been linked to an increase in postoperative pain and analgesic medication (Rosen, 2008). The anxiolytic effects of music are well documented. The current treatment for preoperative anxiety is sedation through administration of benzodiazepines. Benzodiazepines have many adverse effects such as transient hypertension, emergence delirium in the elderly population, a prolonged half-life, and respiratory depression. These findings support a more holistic osteopathic approach to preoperative anxiety; one that does not have to implement pharmacological agents such as sedatives. Future studies should exclude patients with previous history of anesthesia and surgical exposure. This will ensure that all participants are experiencing the events of surgery for the first time in their life and therefore prior bias will not influence their anxiety levels. All in all, utilization of music in the preoperative period may result in an increase in better patient outcomes.

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