The effects of music therapy on stress management in patients with multiple myeloma undergoing autologous hematopoietic stem cell transplantation: A Feasibility Study

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Abstract

Hematopoietic stem cell transplantation (HSCT) literature suggests strong links between transplant-related stress and late psychological issues/transplant success. Music Therapy is an allied health profession shown to be effective in stress management through influencing physiological and psychological processes.

This small-scale pilot tests a study protocol designed to measure stress response in HSCT patients receiving music therapy. The primary aim is to establish the feasibility of measuring patient perception and neuro-connectivity by self-reported scales and fMRI, respectively. Given a sample size of N=3, no statistical analyses will be performed although we will examine the data for preliminary patterns.

Method

Compelling research suggests that Music Therapy interventions can reduce stress. The literature posits that:

- Use non-dominant hemispheric activity to increase efficiency of relaxation through
  - Distraction
  - Cognitive engagement
  - Entrainment of physiologic function
- Educate patients on bodily responses to stress. By bridging the gap between the conscious and normally unconscious activities of the body, individuals can develop a new understanding and increasing sense of control over their internal states.
- Help patients recognize feelings and behaviors associated with stress in order to develop appropriate and alternative ways of coping.

A brief evaluation of the patient was done at the start of each session and the following decision tree was utilized to determine treatment methods for the day.

Preliminary Findings

Of the two subjects that have participated in this study, it appears that before/after changes in neuro-connectivity are consistent.

MRI findings demonstrate decreased intrinsic functional connectivity of the default mode and salience networks, as well as increased sensorimotor network from the baseline visit to the post-treatment visit. In the baseline images, we see highly correlated brain regions that could indicate high anxiety levels, such as anterior insula and dorsal anterior cingulate cortex, while the post-treatment scans show reduced correlations within stress-related networks.

References

Cohen, S. (1994). Perceived Stress Scale [Mind Garden, Inc. is a leading international publisher of psychological assessments, focusing on providing ease, access, speed, and flexibility. This piece is a PDF found on the internet with detailed information on the Perceived Stress Scale.].