



Research paper

Feasibility of a trial with Tibetan Singing Bowls, and suggested benefits in metastatic cancer patients. A pilot study in an Italian Oncology Unit

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Abstract

Introduction

Sound is a physical pervasive phenomenon inducing resonance influencing cell metabolism with bodily water mediating the effects of vibration. Tibetan Singing Bowls may induce state of wellbeing in patients with cancer which can be measured.

Methods

This pilot study included 12 metastatic cancer patients undergoing 6 sessions using Tibetan Bowls. Objective (electrocardiography, skin conductance and electroencephalography) and subjective measurements (QoL, Anxiety/Depression, Distress, Fatigue) were performed. End points were feasibility (recruitment, attendance, compliance to treatment) and benefits (amelioration in QoL, anxiety, distress, arousal and mental exhaustion).

Results

All 12 patients were recruited over a two-week period; 83% attended all sessions. 83% of the patients completed questionnaires to assess subjective efficacy. 59 instrumental tests were performed out of 60 sessions completed. For subjective parameters, a statistically significant difference emerged only for the Distress Thermometer (2.4 vs 5.3 $p=0.0005$). Objective parameters: 1) tonic skin conductance level (SCL) decreased significantly ($p=0.0091$) and phasic SCL ($p=0.0064$); 2) heart rate variability (HRV) significantly increased ($p=0.0041$); 3) EEG registration in anterior-frontal areas revealed changes in beta, alpha and inter-hemispheric coherence, (beta: $p=0.09$; alpha $p=0.046$; coherence $p=0.084$).

Conclusion

The feasibility endpoints (acceptance, attendance and compliance) were achieved; personalized programs should be offered to patients at risk of rapid worsening conditions and to subjects affected by bone metastases. A visual tool for subjective distress appears more appropriate than validated questionnaires. Useful tools for collection of objective data

are SCL, HRV, and antero-frontal EEG. Tibetan Bowls decrease anxiety, arousal, involuntary mental activity and stress. Larger trials should confirm these results.

Introduction

From ancient times, some important effects have been attributed to the interaction of sound with living systems; in fact, particular instruments were developed to accompany meditation, religious rituals and social ceremonies, in which sound was used to align minds and souls and to create a pervasive coherence of the whole community during solemn festivities [1], [2].

In the human body, sound – a physical vibrational phenomenon inducing resonance – passes through hearing and non-hearing tissues. “Sound Massage” is a term that emphasizes the perception of the vibration by the whole organism. Notably, “Sound Therapy” differs from “Music Therapy”; “sound” is an audible vibration, while “music” is as an artificial product, made up of sounds, that consists of harmony, melody and rhythm [3]. “Sound Therapy” uses sound as a physical phenomenon, with neither rhythm nor melody, to create the optimal resonance between the vibrations of the singing bells and the vibrations of the specific receiver. Sound therapists abstain from melodic structures that could recall previous experiences. Gongs and Tibetan Singing Bowls are traditional instruments used in sound therapy. The resonance of their vibrations with the body of the receiver dictates the optimal modality of sound treatment [4], [5].

The physics of Singing Bowls and Gongs have been reported in various papers [6], [7], [8], [9], [10], [11]. Resonance is defined as a phenomenon in which an oscillating system can absorb energy from an external source, with particular efficiency at only one specific frequency. Every physical system – characterized by its own frequencies of oscillation – can enter into resonance with an external source.

A few years ago, a team of biologists amplified and studied sound waves produced by cells; the sound of the cells seems to be related to cell metabolism and to specific gene expressions; distinct vibrations, which join cell surface via the cytoskeleton, seem to be the result of specific DNA assembly and disassembly. This could imply that external vibrations play a role on the modulation of cell activity [12].

Bio-resonance indicates the effects of the sound on human body. It arises at two levels: a mechanical-acoustic level, due to the pressure wave of the sound on every tissue of the body; and an electro-magnetic level, due to the ultra-weak electro-magnetic field created by every sound, affecting bodily water, molecules and cerebral waves.

From the first experiences with Tibetan Singing Bowls in cancer patients, we noticed that they experienced a profound relaxation, a reduction in anxiety and a state of well-being, expressed in various metaphors and analogies; for example, patients said, “I felt the sound of the singing bowls joining and melting together and I sensed a breeze that wiped out anxiety and pain”; “I could talk with myself again”; “I had the perception of my body and this helped me not to be afraid”; “I felt that I could again trust in my self-defence ability”. As a result, patients regained awareness of their bodies, a higher mood and a good disposition towards the future. Patients said that their subjective well-being, difficult to express, lasted up to three days after a session [13].

Section snippets

Materials and methods

We conducted a pilot study to evaluate the feasibility of a trial with Tibetan singing bowls in the clinical setting of an Oncology Unit. We underline that, as a “pilot study”, this is a small scale study specifically designed in order to evaluate feasibility, drawbacks, tools/methods of measurements and effects, prior to perform a full scale research project.

Consequently we included only 12 metastatic cancer patients, and defined as primary end points recruitment, attendance, and compliance...

Statistical analysis

Significance was determined using the Student *T*-test, two-way for paired data 95% confidence interval. For non-normally distributed data Wilcoxon signed rank test was used. Wilcoxon matched pair data test, is a non-parametric test used to test the median difference in pair data. Analysis was performed using STATA software.

Hypothesis

Our expectations to meet feasibility end-points were the following: speed of enrollment (weeks needed to enroll 6 pts/group): <2 weeks; attendance at the totality of sessions: ...

...

Results

Patients' characteristics were as shown in Table 2. Both sexes were equally represented. ECOG performance status 1 was prevalent. The most represented sites of primary tumor were breast and lung cancers. Metastatic sites were mostly bones (75%) and lymphnodes (42%).

In 25% of the patients, the site of metastases defined both the posture of the receivers and the duration of sessions.

All 12 pts (100%) were recruited in a two-week period, indicating a high grade of acceptance of the study. One...

Discussion

The Cochrane Collaboration published in 2011 an Intervention Review on the benefits in psychological and physical outcomes achieved through music interventions in cancer patients [28]. The analysis included 30 trials with a total of 1891 participants. Authors concluded that "music interventions may have beneficial effects on anxiety, pain, mood and QoL in people with cancer. Furthermore, music may have a slight effect on heart rate, respiratory rate, and blood pressure. Most trials were at high ...

Feasibility

In conclusion, our pilot study shows the feasibility of this supportive non-conventional treatment in terms of recruitment, acceptance, attendance and compliance in good performance status cancer patients, although attention should be paid to patients whose condition could rapidly worsen. They should receive a more concentrated program. Subjects affected by bone metastases should be carefully placed in comfortable positions on the tatami from the very beginning of the program....

Tools and measurements

In oncological...

Financial support

None....

Conflict of interest

None of the authors have any conflicts of interests. The study was conducted with no financial support. All activities were offered on a voluntary basis in favour of AMOP (Associazione Malato Oncologico Piacentino) for oncology patients....

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...In addition, Goldsby et al.¹⁷ reported a significant reduction in tension, anger, confusion and vigor, while it was unclear whether any change in pain was statistically significant. Bidin et al.³⁴ also found that the treatment did not result in an improvement in quality of life (see Table 1 for details). Goldsby et al.¹⁷ also stratified their analysis by age and naivety with singing bowl therapies (i.e. no previous exposure) for anxiety, depression and tension (see Table 1 for the results)...

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