Experimental

NON-PHARMACEUTICAL TREATMENT OF DEPRESSION USING A MULTIMODAL APPROACH

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ABSTRACT

One hundred forty-one individuals suffering from chronic depression, unresponsive to previous drug therapy, were treated with a 44-hour program of education, Cranial Electrical Stimulation (CES), Brain Wave Synchronization (BWS), musical conditioning, and a mentally programmed quartz or glass "crystal" randomly assigned with therapists and patients blinded to the crystal's composition. Eighty-four percent of the depressed patients were improved at the end of two weeks of therapy, apparently as a result of the multimodal therapy and group interaction.

The results at three months follow-up suggest a positive subtle energy effect of quartz: 70% of the depressed patients who received quartz remained improved, while only 31.5% of the depressed patients receiving glass remained improved. These differences are highly statistically significant. It appears that mentally "programmed" quartz may offer a significant reinforcement to allow patients better long-term recovery than would occur with placebo (glass). The cost effectiveness of such a therapeutic approach is significant. Other therapists are encouraged to replicate these studies.

KEYWORDS: Depression, quartz, brain wave synchronization, cranial electrical stimulation, self-regulation training

INTRODUCTION AND BACKGROUND

For 20 years we have used a variety of non-pharmaceutical therapeutic approaches to treat patients with depression. These have included Cranial Electrical Stimulation (CES), a safe low amperage (1-4 milliamps) stimulator which has been effective in relieving depression in some patients using it daily for two weeks.[1,2]

In addition, there have been reports of improvement in depression with autogenic training, the major component of a self-regulation training program used by us for 20 years in treating patients with chronic pain and depression.[3]

We have for 17 years used photostimulation brain wave synchronization (BWS) to assist relaxation and found that 90% of patients report feelings of deep relaxation within 10 minutes of photostimulation at 3 to 12 Hz.[4]

Music has also been reported to lead to relaxation and a calming of agitation[4] as well as lowered levels of adrenalin and cortisol under the stress of anesthesia.[5]

Although there is some public interest and "belief" in the positive value of quartz as an adjunct to healing, we are unable to locate any scientific literature on the use of quartz in therapy. The current study is an initial investigation of the potential positive influence of quartz in maintaining a positive mental attitude. Quartz is a piezoelectric material widely used in electronic equipment.

In the current study we integrated self-regulation education, CES, BWS, and music into a two-week education-experiential treatment program. Patients were also randomly assigned quartz or glass "crystals" to be mentally programmed with a short, positive healing phrase, such as "I am happy and joyous." This "crystal" was to be worn as a possible reinforcing conditioner during a three-month post-treatment period.

HYPOTHESES

1. A multimodal educational/therapeutic program of self-regulation training, music, CES, and BWS will lead to reduction in depression.

2. Quartz crystal mentally programmed to assist a positive mental attitude may have a greater effect upon maintenance of improved mood than will glass.

PROTOCOL

One hundred forty-one chronically depressed patients entered the treatment program. All had been depressed over six months and had failed to respond to previous antidepressant drug therapy. Eighty-five were female and 56 were male. They ranged in age from 19 to 76.

DESIGN

Patients received all initial testing, education, and treatment in 44 hours over a two-week period. Eighteen groups of 8 to 12 patients were treated.

INITIAL TESTING

1. Clinical review and Zung test for depression prior to entering the study.

2. The first 103 patients had blood drawn before therapy, to be tested for norepinephrine (NE), serotonin (ST), cholinesterase (CHE), beta-endorphin (BE), and melatonin (MEL).

THERAPY PROGRAM

Steps 1 through 4 took place in a large (1000 sq. ft.) semicircular room with reclining chairs and mats for relaxation. The entire project was done at the Shealy Institute, a building of six connected circular pods, located in Springfield, Missouri. In other areas of the building a variety of non-research patients were being treated.

1. Twelve hours of lectures were delivered over 10 days. Topics included discussions of electromagnetic energy, chakras, stress, psychological roots of health, will, nutrition, physical exercise, and an overview of Biogenics,[R] our system of self-regulation training.[3]

2. Daily each morning before noon one hour of CES transtemporally, at 1 milliamp or less, the threshold for evoking a visual flicker, was used to set intensity.

3. Daily one hour of BWS (photostimulation) at 10 Hz.

4. Daily two hours of music in a large room with good quality stereo music. Patients listened to four classical and four relaxation selections.

   Classical choices included:

   Beethoven's *Symphony No. 6*
   Rachmaninoff's *Isle of the Dead*
   Pachelbel's *Canon in D*
   Mozart's *Requiem*

   Relaxation music included:

   Halpern's *Spectrum Suite*
   Bearns & Dexter's *Golden Voyage IV*
   Kitaro's *My Best*
   Aeoliah's *Crystal Illumination*

   By the third day patients chose one relaxation and one classical selection to be used during their musical "bed" experience and at home.

5. Daily one hour on a musical bed consisting of speakers and transducers which allow the body to experience vibratory as well as auditory sensations during the music. These sessions were in one of three private, separate rooms.

ASSIGNMENT OF GLASS VS. QUARTZ

6. On the third day each patient was randomly assigned either a shaped glass or quartz "crystal." Since we planned on including 200 patients, including 59 non-depressed patients with pain, 200 slips of paper folded evenly were placed in a box with the slips coded equally either quartz or glass. The patients were assigned a number by the project director, who did the majority of the education and directed the day-to-day assignment to various therapeutic modalities. The slips of paper were thoroughly mixed in a box and drawn one at a time by an individual who was not involved in the day-to-day treatment program. That individual assigned the "crystals" sequentially as drawn, without the knowledge of the project director. Patients knew that they might receive either quartz or glass but were unable to distinguish the two. Eighty-five percent of the patients stated that they "believed" that they received quartz.

MENTAL PROGRAMMING OF CRYSTALS

Once the "crystals" were distributed patients were guided to pass their "crystal" through a candle flame while willing the "crystal" to be cleared of all stored energy. They then were asked to breathe out onto the "crystal" three times while thinking their agreed upon positive healing phrase. Each patient chose a phrase meaningful to them, similar to "I am happy and joyous."

They then placed their "crystal" in a white satin pouch to be worn on a cord around the neck, with the pouch over the anterior mid-sternum every day. They were instructed to avoid allowing anyone else to touch their "crystal" and to reprogram it positively every morning for one week and once a week thereafter.

THREE-MONTH POST-THERAPY PLAN

At the end of two weeks, patients were sent home with a musical tape consisting of 20 minutes each of their chosen classical and relaxation music plus a positive

guided imagery tape. They were asked to listen to one of these tapes twice each day for three months while doing mental relaxation/self-regulation. They were also to wear the pouch containing their "crystal" all waking hours except during bathing for three months. They then returned for repeated Zung tests and, in the first 103 patients, repeat blood tests.

RESEARCH TEAM PARTICIPANTS

Principal Investigator - M.D.

Designed protocol. Reviewed clinical records and Zung. Gave four to six hours of lectures. Placed numbered slips in box. Provided glass or quartz after random selection by a clinic staff member not involved in the research treatment program.

Project Director - R.N., M.S.W., Ph.D.

Provided six to eight lectures. Supervised collection of records and all daily activities.

Lab Director - L.P.N.

Drew blood, centrifuged it and separated plasma or serum. Labeled tubes and froze them. All blood samples were sent at the completion of the project by overnight mail with dry ice to a reference lab (Brunswick Hospital, Long Island).

Research Associate - M.A.

Organized records and data. Assisted patients to musical bed rooms and started the music chosen.

Statistician - Psy.D.

At Forest Institute of Professional Psychology. Analyzed the data provided him by the Research Associate.

HUMAN EXPERIMENTATION STATEMENT

All patients were informed that they would be randomly assigned either quartz or glass. They were told that, if they did not feel improved, they could, after three months, request verification of whether they received quartz or glass, and if they received glass they could go through the entire project again. Only one patient requested re-treatment. He did not improve either time.

The educational, CES, BWS, and music aspects of therapy were explained. The patients signed an informed consent form acknowledging acceptance of the experimental and unproven nature of the therapeutic protocol and their right to withdraw at any time.

RESULTS

Neurochemical Tests

Blood levels of NE, CHE, ST, BE and MEL were measured and ratios of NE/ST, NE/CHE, ST/MEL and ST/BE were done. There were, thus, 927 blood test results prior to and 927 after treatment.

Prior to treatment 90% of the patients had one to seven abnormalities (levels above or below the laboratory normal ranges), with a total of 337 abnormalities (out of 927 possible) in 103 patients.

Three months after the treatment program, 29 of the patients had one to four abnormalities, with a total of 46 recorded abnormalities (out of 927 possible) in 103 patients. Of even greater interest, only four of those who had residual abnormalities after therapy were classified as being out of depression. In other words, 25 of the 29 were still depressed.

Zung Tests

At the end of two weeks 119 of the 141 patients had Zung scores 10 points or more lower than their initial scores or below 50, which is the minimal level for diagnosis of clinical depression. Seventy-five of the 88 who received quartz

were improved. Forty-three of the 53 who received glass were improved initially. Thus 84% of all patients improved initially.

Three months after therapy, 61 of the 88 who received quartz and 17 of the 53 who received glass were improved.

Using the differences between Zung tests before and three months after therapy, a separate variants estimate reveals a *t*-value of 3.60 with 115.06 degrees of freedom and a 2-tail probability of 0.001, meaning that *Hypothesis One* is confirmed at a highly statistically significant level.

Analysis of the Zung tests in the glass vs. quartz assigned patients prior to therapy reveals no difference between these two groups. The *t*-value between the groups was minus .82 with 89.42 degrees of freedom and the 2-tail probability is only 0.412, which is insignificant. Thus, depression scores pre-treatment were similar in the two groups, quartz and glass.

Three months after treatment 61 of the 88 patients (70%) who received quartz remained improved. Of the 53 who received glass, only 17 (31.5%) remained improved.

The outcome difference between the quartz- and glass-assigned patients is highly statistically significant, with a *t*-value of minus 3.56, with 124.66 degrees of freedom, and a 2-tail probability of 0.001, confirming *Hypothesis Two.*

DISCUSSION

The results reported are quite intriguing as both the clients who received glass and those who received quartz improved markedly during the two-week initial treatment program. It appears that musical conditioning, CES, BWS, and education are as effective as much more elaborate treatment programs with drugs and counseling, at least for initial therapy. Actually, no drug has been reported to give 84% of patients improvement in depression within two weeks. Furthermore, the three-month follow-up results in the quartz crystal group are almost twice as good as can be expected with most antidepressants, and without the side effects.

Although patients receiving glass are "statistically significantly" improved three months later, and had failed earlier drug therapy, the actual percentages are closer to usual "placebo" studies. It is, of course, interesting that 84% of all the depressed patients improved initially.

The cost effectiveness of such therapy is obvious to us. Indeed, such therapy can be offered at about 35% of the cost of our usual rehabilitation program. An earlier follow-up of 800 patients treated with 80 hours of intense multidisciplinary therapy, revealed a 70% three-year success rate, with virtually all the "failures" occurring in the first month after discharge.[6] A three-month success rate of 70% in treating depression is impressive, considering the marked decrease in therapeutic personnel. Maintenance of improvement appears to be related to the mentally programmed quartz. Replication of this initial study is needed.

IMPLICATIONS FOR FURTHER RESEARCH

As is to be expected with the potential controversy raised by the use of quartz as a conditioner of mood, this research raises many more questions than it answers:

- Can others replicate our experience?
- Is quartz really "essential" for maintenance of improvement?
- Is there any alternative explanation for the better results with programmed quartz?
- What is the energetic effect of the quartz?
- What can be done to assist those individuals who initially improved but who failed to maintain improvement even with quartz?
- Why did the individuals who "failed" to improve longer term also fail to return for re-treatment?

Currently we are exploring answers to some of these questions, especially looking at the total body magnesium levels and essential amino acids in those who improved and those who did not.

We encourage other therapists to replicate our study, hopefully at first using the same components and then, if desired, investigating the individual components of therapy. The implications for a cost effective therapeutic approach to depression are worthy of further study.

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