HEART RATE FEEDBACK AND THE MANAGEMENT OF CARDIAC NEUROSIS

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This article describes the treatment of a chronic case of cardiac neurosis which had failed to respond to several prior medical and psychological interventions. Significant and durable symptomatic response appeared to be correlated with the application of a combination of procedures including heart rate feedback, patient-administered desensitization, and therapist-administered flooding.

In previous studies, it has been shown that biofeedback procedures can facilitate the desensitization of examination phobia (Wickramasekera, 1972) and headache pain (Budzynski, Stoyva, & Adler 1970, Wickramasekera, 1973a, 1973b; in press). It appears that any procedure that focuses on an internal response (e.g., EMG, temperature, etc.) and provides a reliable means of modifying the response can be used to cultivate a state of low arousal (Wickramasekera, 1973c). In the present study, heart rate feedback was used at first to cultivate a state of low arousal and later to alter the patient's cognitions about his cardiac function. The induction of low arousal states appears to increase the probability of altering cognitive and attitudinal variables (Wickramasekera 1973b).

The patient was a 55-year-old white married male and the sales manager of a large urban real estate firm. One afternoon, five years ago, the patient had experienced shortness of breath and palpitation while mowing his grass. The patient panicked and was taken to the emergency room of the local general hospital. The physical examination and tests were negative. Since that initial incident, there have been over 25 similar "panics," trips to the emergency room, and negative physical findings. The patient states that the primary symptoms that trigger these incidents are (a) a noticeable increase in his heart rate, (b) shortness of breath, and (c) feeling of "passing out." These sensations and his reactions to them had in the past five years seriously disrupted his job performance. His hypersensitivity to his cardiac function (he anticipated that even slight changes in his heart rate would trigger shortness of breath and fainting), limited his sales activities, which in turn made him feel like "excess baggage" to his employer. He was becoming hypersensitive to even minimal indications of impatience or rejection from fellow salesmen, his boss, or customers. His preoccupation with his health, cardiac function (consultation with many different cardiologists and leading medical clinics), mild paranoid tendencies, and fear of being left alone were placing a severe strain on his marriage. He also avoided sexual relations for fear of a "heart attack." His wife had liked and admired the aggressive risk-taking, independent man he had been prior to his cardiac neurosis. Her clear rejection and resentment of his dependency hurt his feelings and convinced him that he was unwanted both at work and at home. When he came to see me, he felt quite alone, angry, and bitter. He was sporadically deeply depressed, and he felt that his wiling self-confidence was obvious to others around him at work.

The patient had previously been treated ineffectively with hypnosis, psychotherapy, and chemotherapy by two psychiatrists, several medical specialists, and two nationally prominent medical clinics.

After the clinical diagnostic interview, the following psychological tests were administered: (a) The Spiegel Eye Roll Test of hypnotic susceptibility was administered by the present writer. The Spiegel test is a very brief clinical screening procedure which predicts hypnotizability. Scores on the test range from 0 to 5. The patient scored a 5 on the test which indicates very superior hypnotic susceptibility. (b) The Minnesota Multiphasic Personality Inventory was administered and found to be elevated (above 70 T) on Scales Hs, D, Hs, Pd, Pa, Pt, and Sc. The greatest elevation was on the neurotic triad with a peak on D. After the diagnostic interview and psycho-

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logical testing, the patient was told that his unravelling self-confidence and other symptoms (preoccupation with his health, depression, anxiety, suspiciousness, anger, etc.) were based on his belief and feeling that his cardiac function was outside his control and unreliable. It was pointed out that all the medical evidence indicated that his cardiac function was normal and reliable but that I recognized that he was unable to accept this finding completely. I added that it seemed to me that his previous self-confidence and business success were based on his independence and his ability to control the consequences of his behavior. I concluded by saying that it appeared as if his present neurosis was based on his feeling of "helplessness" insofar as his heart was concerned.

The specific treatment proposed involved the following three steps: (a) Reading several "popular press" articles on biofeedback, self-control, and their clinical applications (in order to structure the patient's expectations, to motivate him, and to prepare him to participate actively in his treatment); (b) learning to relax by slowing down his heart rate with biofeedback (heart rate feedback) instrumentation; and (c) learning to speed up his heart rate and confronting the consequences of such acceleration.

Before the start of therapy, I predicted that his symptoms may have to get worse before they get better, but that these passing setbacks would not detract from his eventual victory over his fear and the reclaiming of his self-confidence. If he participated actively in his treatment, he would be taking control of his life again and arresting the slide that had unravelled his self-confidence.

**Method**

**Procedure**

The patient was seen once a week for 30 minutes. He was connected to a cardiottachometer (Abbott cardiottachometer), which had a visual digital feedback capability. The cardiottachometer was also connected to a recorder. The patient was seated on a comfortable recliner with his eyes open and instructed to attempt to reduce his heart rate. The actual relaxation-feedback session typically was about 15–20 minutes (it took about 10 minutes to connect the subject and check the instrument). No verbal relaxation instructions of any type (muscular, autogenic, or hypnotic) were given to the patient. He was simply told to use the visual heart rate feedback to do more of whatever appeared to reduce his heart rate and relax his body. After about six sessions, the patient appeared to be able to rapidly and reliably lower his heart rate while on the recliner connected to the instrument.

The second procedure involved asking the patient to prepare 20 note cards on which he described briefly and vividly incidents or anticipated incidents involving palpitation, respiratory dysfunction, and syncope. The patient arranged and presented to himself (in imagination) these cards in graduated order. He was instructed to monitor his heart rate and to switch off the scene if it increased noticeably (10 beats/minute over baseline) for more than approximately 60 seconds. The cognitive operations were performed while relaxed on the same recliner and connected to the instruments.

The third and final procedure involved having the therapist flood (verbally) the patient while he monitored his heart rate. The patient was flooded verbally by the present therapist with an elaborated form of the last four items from his aversive hierarchy. The four items had previously been desensitized by the patient with the biofeedback-assisted desensitization procedure. The patient-administered desensitization was arranged to precede the flooding intervention because clinically this patient strongly resembled the type of patient in whom resensitization (Wickramasekera, 1970) and deterioration effects can be demonstrated if a gradual approach is not used and if brief (rather than extended) exposure to aversive cues is used. It became clear to the patient, especially during the flooding, that though his heart rate rose (range of 15–35 beats/minute remarkably for long periods, he did not pass out (which was what he feared most). After the verbal flooding procedure, several stressful stimuli and exercises were presented (e.g., a cap gun discharged at 20, 15, 10, 5, and 2 feet from him, large books dropped unexpectedly, and the patient was instructed to breathe deep and hard for about 20 seconds). During these in-vivo procedures, the patient's heart rate rose dramatically for transient periods but no panic or fainting occurred. Between these in-vivo procedures, the patient practiced his relaxation with cardiac feedback and rapidly and reliably returned his heart rate to normal levels.

**Results**

Treatment was terminated after 16 sessions, and at the time of termination the clinical picture had altered dramatically. The patient had been free of the anxiety episodes for nearly two months. He had become more aggressive and risk taking in the work situation (as he had been prior
to the onset of his symptoms). His relationship with his wife had improved, and he had resumed
sexual intercourse with her on a weekly basis.
A separate interview with the patient’s wife con-
irmed the patient’s report of progress.
Follow-up sessions conducted 6 and 12 months
later in which the patient and his wife were in-
terviewed separately indicate that he has not had
any anxiety episodes since the termination of
treatment and that his general vocational and
marital adjustment have continued to improve.

DISCUSSION

This case history illustrates an approach to
managing cardiac neurosis in patients who on the
Spiegel scale appeared highly hypnotizable. The
following seemed to be the effective operations:
(a) mobilizing the patient’s hope and faith
(through the biofeedback reading), (b) structur-
ing his expectations positively by selecting an
intervention which had high face validity and was
immediately relevant to the patient’s chronic fear
(heart attack), (c) extending voluntary control
into an area in which the patient was previously
“helpless,” and (d) arranging for the elicitation
and extinction of distressing and probably poorly
discriminated visceral sensations. It is possible
but unlikely (because of chronicity of problem
and numerous prior interventions) that the above
interventions were irrelevant to his recovery.

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