Relaxation and Thermal Feedback Treatment of Child Migraine Headache: A Case Study

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Migraine headache in an 11-year-old child was successfully treated using a combination of standard progressive relaxation and thermal biofeedback. A one-year follow-up revealed that headache frequency remained negligible. These results suggest that child migraine may be amenable to procedures reported to be effective with adult migraine.

Though migraine headache is usually thought of as a problem affecting adults, researchers have reported that children, too, suffer from migraine symptoms (Sparks, 1978; Vahlquist, 1955). Two recent reviews of treatment outcome research with adult migraineurs concluded that relaxation training, thermal biofeedback, and their combination all offer promise as effective interventions, though there is much debate as to which of the three accounts for the positive outcome reported (Adams, Feuerstein and Fowler, 1980; Blanchard, Andrasik, Ahles, Teders, and O'Keefe, 1980). Treatment reports on childhood phobias, asthma and seizure disorders have demonstrated that children can master and apply standard progressive relaxation skills (Ross, 1981). Similarly, biofeedback researchers have reported that children can control peripheral temperature in much the same way as adults (Hunter, Russell, Russell and Zimmerman, 1976; Lynch, Hama, Kohn, and Miller, 1976). The purpose of this case study is to demonstrate that child migraine can be effectively treated with standard relaxation and thermal feedback procedures.

Method

Subject

Alan, age 11, first experienced severe headaches at approximately six years of age. At the time of referral, he was having three to four headaches per month. Alan had undergone extensive medical examination (neurological, ophthalmological) and was diagnosed as suffering from migraine headache, classic type. The child reported visual disturbance prior to onset followed by unilateral throbbing pain of three to four hours duration sometimes accompanied by vomiting. Though Cafergot had been prescribed, the mother, a nurse, refused to use the medication because of its negative side effects.

Treatment

Treatment was carried out over a 20-week period and consisted of relaxation training and thermal feedback. Following a four-week baseline of monitoring headache frequency, Alan was instructed in progressive relaxation and provided with an audio tape of the instructions for daily home practice (Goldfried and Davison, 1976). In addition to monitoring headache frequency, he provided daily SUDS ratings (0-100) before and after relaxation practice sessions. Daily cue controlled relaxation practice continued for the remainder of the treatment period.

Weekly thermal biofeedback sessions began after three weeks of relaxation training were completed. Feedback sessions were conducted in a sound attenuated

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chamber and each weekly visit consisted of two feedback sessions (5 minute baseline followed by 15 minutes of feedback). Except for a three week period when the child was away on vacation, the weekly thermal feedback sessions were continuous.

Dependent Measures

During treatment both child and mother recorded headache frequency on standard forms provided to them. In addition, an average weekly SUDS decrease was computed from the child's record of daily relaxation practice. Finally, weekly temperature increase in degrees Fahrenheit was computed as the average difference from baseline for each of the two weekly sessions. Treatment effectiveness was evaluated in a withdrawal design.

At 6-month and 1-year follow-up, headache frequency was based on self report of the child and telephone interviews with both parents.

Results

Figure 1 shows the cumulative headache frequency during baseline, four phases of treatment and 6-week follow-up. Headache frequency increased during relaxation training, despite the fact that ratings of home practiced relaxation showed increasing levels of relaxation. With the introduction of feedback, headache frequency decreased and subjective level of relaxation showed marginal decrease. During withdrawal of feedback, headache frequency increased and ratings of relaxation decreased even though relaxation practice continued. When thermal feedback was re-instated, headaches were eliminated, and ratings of relaxation again showed increased levels of relaxation. No headaches occurred during the 6-week follow-up after all treatment was withdrawn.

At 6-month follow-up the child and parents reported two headaches, one lasting only 30 minutes. At 1-year follow-up the child and mother reported only one additional headache.

Discussion

The results of this case study demonstrate that a child suffering from migraine headache can benefit from treatment procedures which have been shown to be effective with adults experiencing the same problems. In this case, the headaches were markedly reduced when thermal feedback treatment was introduced following relaxation training, and at 1-year follow-up treatment gains were maintained.

The data suggest that thermal feedback was the necessary ingredient for positive response to treatment. Headache frequency decreased when thermal feedback was introduced, increased when feedback was withdrawn, and decreased when feedback was resumed. However, these results should be viewed with caution because the phases for feedback introduction and feedback withdrawal were unequal, of short duration and confounded with changes in the child's life circumstances (i.e., going on vacation). Whether child migraineurs differ from adults in their responsiveness to relaxation, thermal feedback or their combination is a question for larger scale studies which include more adequate controls than were possible in this single trial.

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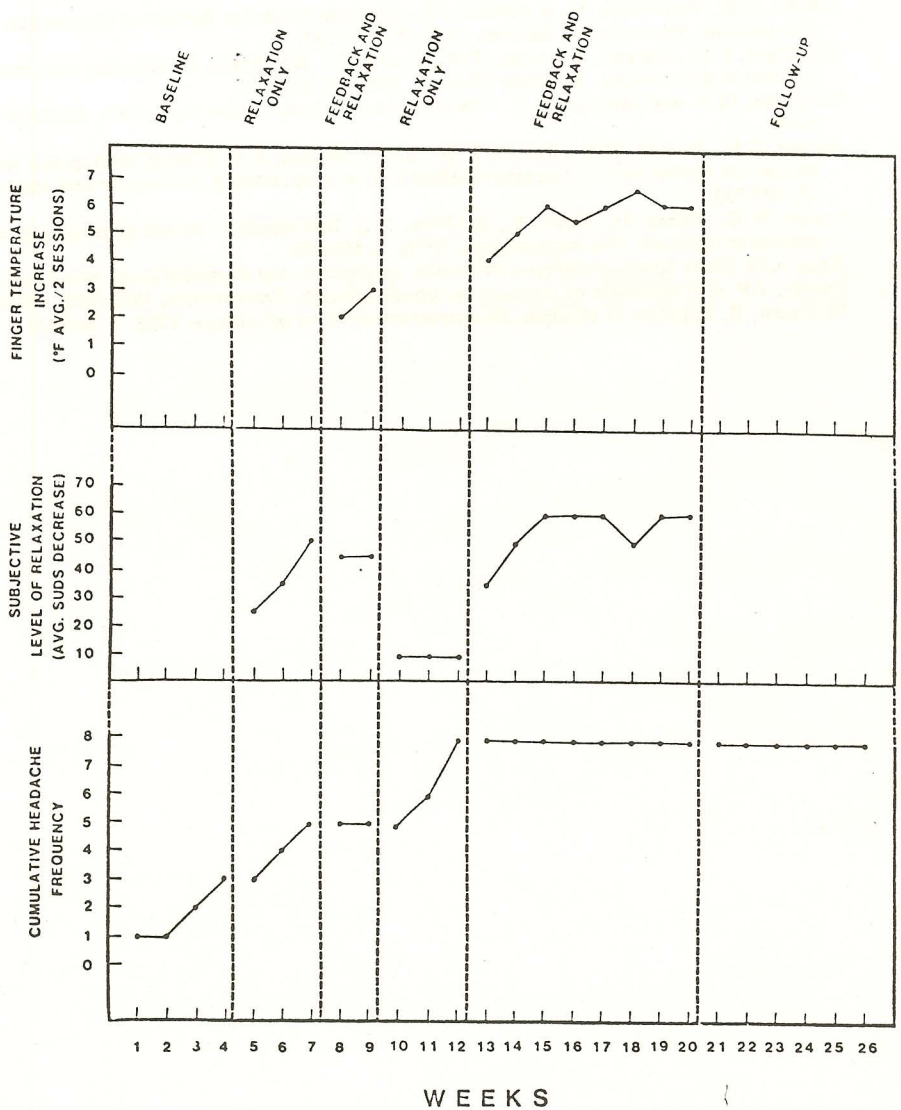

Figure 1. Cumulative headache frequency, level of relaxation (SUDS decrease) and finger temperature increase during six phases: (1) baseline (2) relaxation training (3) relaxation and thermal feedback (4) relaxation only (5) relaxation and thermal feedback (6) follow-up.

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