Blood Volume Pulse Biofeedback Treatment of Chronic Cluster Headache

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Behavioral interventions shown to be clinically effective in the treatment of migraine headache have generally not been employed for cluster headache. Herein, we report on the treatment of a severe case of chronic cluster headache with a common method of migraine treatment, temporal blood volume pulse (BVP) biofeedback. The patient was a 61-year-old male, medically diagnosed as suffering from chronic cluster headaches for over 20 years. Following an 18-day baseline, 14 BVP biofeedback sessions were conducted over a 7-week period. By the last 2 weeks of treatment, there was a 70% reduction in daily headache frequency and a 45% decrease in headache severity. Improvement was maintained at 1, 3, 6, 12, and 21 months follow-up. Large decreases in the consumption of migraine abortives, narcotic analgesics, and antiemetics were also observed. These encouraging results call for further evaluation of the efficacy of BVP biofeedback treatment of chronic cluster headache.

Descriptor Key Words: chronic cluster headache; blood volume pulse biofeedback.

Cluster headache is a type of vascular headache found in approximately 3.0% of the headache population seen by neurologists (Friedman, 1969). Cluster headache is typically characterized by 1-3 daily attacks of severe unilateral head pain, with each attack lasting from 15 minutes to 3 hours (Ekbom & Olivarius, 1971; Kudrow, 1980). Ninety percent of all cluster

1 This research was supported in part by the Psychological Services Center, Memphis State University. Portions of this article were presented at the meeting of the Society of Behavioral Medicine, Chicago, March 1982.
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headache cases are diagnosed as episodic, in which attacks occur in clusters separated by months or years of headache remission. In the remaining 10%, attacks are experienced for at least 1 year without remission and are diagnosed as chronic cluster headache (Ekbom & Olivarius, 1971; Kudrow, 1980).

The behavioral treatment of cluster headache has infrequently been addressed in the headache literature. In a retrospective follow-up investigation, Adler and Adler (1976) examined the effects of skin temperature biofeedback and individual psychotherapy in the treatment of five cluster headache sufferers. On the basis of patients' verbal reports of headache frequency and intensity at 3½ to 5 years posttreatment, Adler and Adler reported a 60% success rate. Similar results were obtained in a study by Benson, Klemchuk, and Graham (1974). They trained one chronic cluster and three episodic cluster headache patients in the relaxation response. Shortly after beginning treatment, the patient with chronic cluster headache became headache-free and remained so for at least 1 year. Two of the patients with episodic cluster headache showed temporary improvement, while the third patient was unchanged.

In the largest behavioral treatment study of cluster headache yet conducted, Blanchard, Andrasik, Jurish, and Teders (1982) reported on the treatment of 11 episodic cluster headache sufferers. Their treatment protocol consisted of 10 sessions of progressive relaxation training followed by 12 sessions of skin temperature biofeedback. Four patients dropped out before treatment began. Of the remaining 7 patients, 3 showed some degree of improvement as judged by elimination or delay of the next scheduled cluster bout, reduction in the duration of the next bout, or a decrease in the frequency or intensity of headaches within the next cluster bout. These results suggest that relaxation and skin temperature biofeedback may possibly be of value for some episodic cluster headache patients.

Although several controlled studies have reported on the effectiveness of temporal blood volume pulse (BVP) biofeedback in the treatment of vascular headaches of the migraine type (e.g., Bild & Adams, 1980; Friar & Beatty, 1976; Sturgis, Tollison, & Adams, 1978), the usefulness of BVP biofeedback for cluster headache remains untested. This paper reports on the use of BVP biofeedback in the treatment of a severe case of chronic cluster headache. In contrast to previous investigators' use of global judgments of headache improvement (Adler & Adler, 1976; Benson et al., 1974; Blanchard et al., 1982), the following case report evaluates treatment efficacy on the basis of extensive quantitative data collected during each of the experimental phases.