Pergamon
Research in Developmental Disabilities
23 (2002) 161–177

Research in Developmental Disabilities

Multiple factors in the long-term effectiveness of contingent electric shock treatment for self-injurious behavior: a case example

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Received 7 August 1999; received in revised form 5 January 2000; accepted 12 June 2001

Abstract

This report describes the effective treatment of self-injurious behavior (SIB) using contingent electric shock in an adolescent. Data are presented to document the initial dramatic reduction in SIB and the ongoing effectiveness of the treatment over a 5-year period. Positive side effects of the intervention are documented, as is information on the interaction of a medical condition (e.g., ear infections, fever), psychoactive medication status, and staff changes that served to effect the rate of SIB across 4 years of treatment. Recognizing and attending to these various factors has served to insure the success of the aversive intervention with very low rates of SIB and, consequently, very low rates of the administration of electric shock. Keeping the rate of administration of shock low serves to decrease the chances of habituation to the shock thereby emphasizing the importance of attending to the individual's total medical, social, and administrative environments.

Keywords: SIB; electric shock; follow-up

1. Introduction

Self-injurious behavior (SIB) has proven to be one of the most difficult behaviors to treat effectively (NIH, 1991). There are over 46 studies documenting the effectiveness of contingent electric stimulation in the treatment of self-injurious

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0891-4222/02/$ – see front matter
PII: S0891-4222(02)00093-8

behavior (Duker & Seys, 1996). This body of research suggests that contingent electric stimulation is generally effective in initially reducing the rates of SIB. Of particular interest, in light of the potential for serious medial consequences of this behavior, is the rapid and dramatic reduction in the rate of SIB seen in many of the studies. Despite the large number of studies reporting the use of contingent electrical stimulation, there are few reporting long-term follow-up.

In a recent series of studies, SIB has been successfully treated using the self-injurious behavior inhibiting system (SIBIS) (Linscheid, Iwata, Rickets, Williams, & Griffin, 1990; Linscheid, Haertel, & Cooley, 1993; Linscheid, Pejeau, Cohen, & Footo-Lenz, 1994; Ricketts, Goza, & Matese, 1993). SIBIS was specifically designed for use with humans by the Applied Physics Laboratory at Johns Hopkins University. SIBIS consists of a sensor module worn on the head that is capable of detecting blows to the head. The device also includes a radio transmitter that sends a radio signal to the stimulus module (usually worn on the leg) that then administers a 200 ms electric shock with a maximum current of 3.5 mA. The system also has a remote activator, a hand-held, wireless device, that can be used to activate the stimulus module to deliver a shock (see Linscheid et al., 1990 for more details). SIBIS has been shown in these studies to be generally effective in suppressing SIB, but there have been reports suggesting that various environmental or administrative factors have the potential to interfere with long-term effectiveness.

Ricketts et al. (1993) reported a case in which an individual, who had initially shown significant reductions in the rate of severe SIB when treated with contingent electric shock (SIBIS), gradually increased the rate of SIB until it returned to near pre-treatment levels. Many factors may have accounted for the return of the SIB, including the fact that the treatment was conducted during daytime hours only, 5 days per week. This restriction in time spent in treatment with SIBIS was based on an administrative decision to allow the treatment only when professional level staff could supervise it. It may be speculated that socially motivated administrative concerns may have interacted with the effectiveness of contingent electric shock in this case. Linscheid et al. (1993) described one case in which SIB rates increased when personnel became less diligent about administering the treatments as prescribed, and Williams, Kirkpatrick-Sanchez, and Crocker (1994), demonstrated variations in the effectiveness of contingent electric shock when the procedure could not be implemented consistently due to staff considerations.

In a recent report, Duker and Seys (1996) found that of 12 cases, contingent electrical stimulation failed to suppress SIB in two individuals, produced near total suppression in seven individuals and showed a moderate response to the treatment for three individuals. The three individuals who showed a moderate initial response to treatment demonstrated an enhanced response to treatment when psychopharmacological and behavioral interventions were coupled with the contingent electric shock. Despite a rather dramatic response in 7 of the 12 individuals, it appears that for 3 individuals contingent electric shock needed to be combined with medication and environmental changes in order to produce the desired degree of suppression of SIB.