On the Diphasic Nature of Vasovagal Fainting Associated with Blood-Injury-Illness Phobia

BRUCE A. THYER, PH.D., AND GEORGE C. CURTIS, M.D.
The University of Michigan

Abstract—A detailed psychophysiologic analysis of a vasovagal faint occurring in a "blood-injury-illness" phobic demonstrated that the syncopal episode consisted of a diphasic response. This lends support to the hypothesis that vasovagal fainting in these patients is caused by an overcompensating rebound parasympathetic activation following sympathetic arousal. Treatment and research implications of this finding are discussed.

Although many individuals with anxiety disorders report feeling faint when confronted with their anxiety-evoking stimulus, or while in the midst of a panic attack, it has recently been suggested that the occurrence of actual syncopal episodes may be limited to those patients with blood, injury, or illness (B-I-I) phobias (Connolly, Hallam and Marks 1976). This hypothesis is supported by our records. In a series of over 300 patients with a DSM-III anxiety disorder seen at our clinic over the last four years, a history of anxiety-evoked fainting was given by 12 of 13 B-I-I phobics and by none of the remaining patients.

Some preliminary case studies have suggested that the syncopal reaction observed in B-I-I phobics is a form of vasovagal fainting (Cohn, Kron and Brady 1976, Curtis and Thyer 1983), with loss of consciousness immediately preceded by rapid and profound bradycardia and hypotension. The exact causes of this response are unclear. It has been reported that certain personality characteristics, such as extraversion and neuroticism, are associated with an individual's cardiac reactivity to slides depicting homicide victims (Harvey and Hirschman 1980). Sledge (1978) suggests, on the basis of the retrospective reports of 18 vasovagal fainters, that these patients experience syncope when forced to submit to a threatening situation which must be denied as threatening. These studies, however, fail to precisely address the question of what evokes the autonomic response of fainting in B-I-I phobics. Some researchers have hypothesized that vasovagal fainting is a diphasic response with initial sympathetic arousal (tachycardia and hypertension) to B-I-I cues triggering a rebound parasympathetic activation, which overcompensates the cardiac response to the point of syncope (Babcock and Powell 1982, Engle 1950, Graham, Kabler and Lunsford 1961, Sledge 1978).

During the course of our behavioral treatment of these patients, which consists of gradual in vivo exposure to B-I-I-related stimuli, the clinician periodically monitors the subject's heart-rate, blood pressure, and subjective anxiety, in an attempt to avoid provoking a faint. The data have proved instructive in those instances, however, when a faint inadvertently occurred (Curtis and Thyer 1983). Clear documentation as to the vasovagal nature of the faint was obtained in each case, but measures of pulse and blood pressure were not recorded in sufficient detail to capture a clear initial phase of sympathetic arousal, if indeed such a phenomenon was occurring. The present case report provides unambiguous evidence as to the diphasic nature of the vasovagal syncope seen in one B-I-I phobic. This finding, if replicated, suggests an innovative approach to the treatment of this debilitating syndrome.

Case Report

A 20-year-old undergraduate student was self-referred to our clinic for the treatment of syncope evoked by B-I-I cues. She met the DSM-III criteria for simple phobia and was otherwise in good psychological health. She reported losing...
consciousness on a few occasions and experiencing less pronounced fainting symptomatology (sensations of warmth, dizziness, visual changes, sweating, and nausea) more frequently. These episodes could be readily aborted by escaping from the B-I-I cues and placing her head between her knees or lying down for several minutes. The patient experienced episodes of accidental dental trauma involving the loss of teeth, blood, and severe pain at ages 7, 9, and 16, which may have served as the sensitizing experiences responsible for her B-I-I phobia.

Prior to beginning treatment, the patient gave informed consent to undergo a venepuncture challenge, while measures were taken of blood pressure (using an inflatable cuff and stethoscope), pulse (using a cardiotachometer), and subjective anxiety (0 = no anxiety, 100 = maximum anxiety). The patient was seated on a couch and a 19-minute baseline was conducted. After minute 12, the patient was told that the venepuncture would be performed in a few minutes. A tray containing the venepuncture materials was brought into the room and a venepuncture per-

**Fig. 1.** Cardiac and subjective response to a venipuncture challenge with a blood phobic.