Neurologic, Electroencephalographic and General Medical Observations in Subjects Administered Ibo
gaine

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ABSTRACT

IBOGAINE is a potentially hallucinogenic indole alkaloid with anecdotal antiaddictive properties against multiple drugs of abuse. Medical literature concerning the administration of this substance to humans is sparse. Ibo
gaine HCL (20-25 mg/kg) was administered orally to five subjects addicted to cocaine and/or opiates. Subjects underwent continuous intensive medical, neurologic and electroence
cphalographic observation. Movement-induced nausea and vomiting was seen in several subjects, all developed transient ataxia, and several experienced visual halluci
nosis. No general medical, EKG or EEG abnormalities were seen. No subjects experienced withdrawal symptoms 24 hours after treatment, and two subjects were free of withdrawal or craving one week after treatment.

INTRODUCTION

Ibo
gaine (NIH 10567, EndabuseTM) is an indole alkaloid derived from the West African bush, Tabernanthe iboga. Histori
cally, the crude extract has been used by native tribes in Gabon; in low doses as a stimulant, and in high doses as an halluci
nogenic agent utilized in folk rituals (1). Ibo
gaine has also been utilized in the psychotherapeutic milieu, largely for its abreactive properties (2,3). More recently, anecdotal reports have indicated that ibogaine has potential antiaddictive properties against multiple drugs of abuse, including opiates, stimulants and alcohol (4-9). Drug use is reportedly abruptly terminated without the development of withdrawal symptoms or drug-craving. There is also a body of recent animal research to support such claims (10-16). Pharmacologic studies suggest that ibogaine may act via interactions with the opioid, dopaminergic, serotonergic and/or glutamater
gic neurotransmitter systems (13,17-21).

Reports of ibogaine administration to humans have been largely anecdotal and medically unsupervised. The few reports by physicians have utilized lower dosages of ibogaine (300-400 mg) than those reported effective in the interruption of poly substance abuse (20-25 mg/kg), and descriptions of its effects have concen
trated more on the visual imagery induced and the psychodynamic effects of treat
ment (2,3). The present report is intended to enlarge the small medically supervised literature concerning the acute effects of human treatment with ibogaine, particularly in the setting of chemical dependence. Specific attention was paid to general medical, neurologic and electroencephalographic findings.

METHODS

The present study represented a collaborative effort between the University of Miami, CITLA (Centro Internacional para el Tratamiento de Adicciones) and NDA International. Subjects were ob
tained by private application to NDA
RESULTS

Secondary authors, who were in charge of the administration of 25 mg/kg of Lovastatin every 30 minutes (10 minutes before the administration of the drug) to six subjects with normal coronary arteries in the course of the following days. These were performed by the primary examiner, who was located in New York, and were performed by Dr. D. R. A. J. D. in a double-blind manner. The subjects were then divided into two groups: Group A and Group B. Group A received a placebo, while Group B received Lovastatin.

In Group A, the subjects showed no significant changes in their electrocardiographic (ECG) tracings. In Group B, the subjects showed a significant decrease in their ECG tracings, indicating a reduction in the size of the heart muscle. The results of these studies were then analyzed by the primary examiner, who was located in New York, and were published in the journal of the American Heart Association.

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fully responsive, and demonstrated no evidence of psychological or physiologic anxiety, whether or not hallucinosis occurred.

During the study there were no significant general medical or electrocardiographic abnormalities noted.

On the morning after treatment, subjects demonstrated no psychological or physiologic evidence of drug withdrawal, nor was there evidence of craving or drug-seeking behavior. In the case of subjects 4 and 5, there was no evidence of drug withdrawal or craving when seen one week later in New York. Subjects 1 through 3 returned home following treatment and were thus not seen by the authors in follow-up.

**DISCUSSION**

Overall, ibogaine was well-tolerated, aside from the occurrence of early motion-induced nausea and vomiting in several subjects, which likely reflects acute vestibulocerebellar dysfunction. Thus, subjects treated with ibogaine should remain relatively immobile, and prophylactic treatment with antiemetics seems warranted to ensure effective treatment. There was otherwise no evidence of general systemic side-effects due to ibogaine.

In animal studies of ibogaine, tremor and ataxia are frequent acute effects of treatment (13,22,23), and suggest the presence of transient cerebellar dysfunction. Some concern has been raised by O’Hearn et al., who reported indirect evidence of possible cerebellar Purkine cell damage in rats given 100 mg/kg of ibogaine (23). However, the ibogaine dosage used in this study was much higher than that used in the Endabuse procedure (20-25 mg/kg). Molinari et al. have replicated these findings at a dose of 100 mg/kg, but have found no evidence of neuropathologic changes at a dose of 40 mg/kg (24). Similarly, Sanchez-Ramos and Mash found no neuropathologic changes in green monkeys given ibogaine 5-25 mg/kg daily for four days (25). In our subjects, ataxia and rare tremor were seen transiently, but there was no clinical evidence of persistent cerebellar dysfunction following treatment.

Past animal research has suggested that high doses of ibogaine may result in seizures (22,26) However, there is also animal data suggesting that ibogaine may have an anticonvulsant effect (27). In rats, ibogaine (10-30 mg/kg intraperitoneal) caused only an increase in EEG rhythmic theta range activity, but there was no report of epileptiform activity being seen (28). In cats, EEG arousal patterns have been described (29). In our subjects, the first humans studied electroencephalographically during ibogaine intoxication, EEGs were normal and there was no clinical or electroencephalographic evidence of seizure activity.

Despite the powerful hallucinogenic properties of ibogaine, all subjects maintained intact reality testing and responsivity during treatment and demonstrated no signs or symptoms of anxiety or thought disorders. In three subjects visual hallucinosis occurred during treatment. Hallucinosis was present only with the subjects eyes closed, as described by Sigg (29,30), and patients were typically reluctant to discuss these at any length. One patient described simple moving geometric spheres, like “asteroids in space,” akin to the description by Sigg of “disks dancing up and down the walls.” (30). Another described vivid memories of early childhood, similar to the reactions described by Naranjo (2,3). It is notable that at least short-term interruption of drug use was achieved whether or not patients experienced visual hallucinosis. In some subjects who did not experience hallucinosis the heightened awareness of the psychodynamic factors behind their addictions may still have contributed to successful treatment. However, this does not preclude the possibility that the antiaddictive effects of ibogaine may be more closely related to potential neurotransmitter effects rather than psychological abreaction. These matters will require further research in order to determine ibogaine’s mechanism of action.

In our subjects there were no signs or symptoms of drug withdrawal or craving immediately after treatment. In addition, when examined one week after treatment the two subjects examined at that time remained free of symptoms Though drug testing was not performed at that time, there were no observable signs of recurrent drug use. There was also no reason for...
BIBLIOGRAPHY

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