INTERNATIONAL PERSPECTIVE

A Preliminary Investigation of Ibogaine:

Case Reports and Recommendations for Further Study

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Abstract

A naturally occurring substance, ibogaine, was taken by seven individuals who were addicted to opiates. Ibogaine, an alkaloid with psychotropic effects at doses of 200-300 mg and above, was taken in single doses of 700-1800 mg by the subjects in the study. At the end of the 24-38-hr psychoactive period induced by the drug at these doses, none of the subjects displayed significant opiate withdrawal symptoms. At the lowest dose of 700 mg, one subject recontinued his drug abuse after 2 days; of the remaining six individuals who took 1,000 mg or above, two relapsed after a number of weeks, one reverted to intermittent heroin use, and three appear to have remained drug-free 14 weeks or more after undergoing this experimental treatment. Ibogaine may be of value in the present and could serve as a model for the development of improved agents for the treatment of substance abuse in the future.

Keywords - addiction; detoxification; heroin dependence; opiate withdrawal; substance abuse; substance withdrawal syndrome.

Introduction

The regular taking of heroin is an evident problem in many cities with an array of associated problems including homelessness, crime, and damage to health. Individuals who have been heroin-dependent for long periods often desperately wish to end their addiction but cannot, and prolonged substance dependence can lead to death.

Following reports that a nonaddictive plant extract was capable of rapidly arresting opiate dependence, an informal study by an autonomous group of researchers, a

"Skunk Works" originating from the Amsterdam squatter community, was undertaken.

Hirez is a loosely knit organization founded by the author that has undertaken valuable research work, which may be of especial interest because of its unconventional nature, in the fields of virology and substance abuse.

Background to Ibogaine

The indole alkaloid ibogaine naturally occurs in the root bark of the plant Tabernanthe Iboga, which is native to equatorial Africa. The plant is a rich source of a dozen or more alkaloids, and the root bark is consumed in huge quantities in raw, ground form during ceremonies of the Bwiti and Mbiri cults of Gabon and Kameroon. The quantity consumed can be up to 60 times the threshold dose of ibogaine (Fernandez, 1982), and a number of fatalities have occurred, reportedly chiefly among initiates of low body weight. The ritual has been termed "cracking the skull." The root of Iboga is also regularly used in smaller quantities to enable hunters and warriors to remain awake while standing motionless for long periods.

Ciba-Geigy performed some detailed pharmacological and toxicological studies on ibogaine and the ability of the substance to potentiate morphine analgesia was documented in an early study (Schneider & McArthur, 1956). An extensive French-language review of the chemistry and pharmacology of the alkaloids of Tabernanthe Iboga is available (Gaignault & Delourme-Houde, 1977), and this includes 121 references to the literature relating to ibogaine published between 1864 and 1975. In the review, several therapeutic applications of ibogaine are detailed at doses of 10-30 mg together with a summary of previous investigations of ibogaine's mechanisms of action on the central nervous system. Similarities are drawn, at least as far as the ability to modulate serotonin and the catecholamines are concerned, between ibogaine and 2-bromo LSD.

In the 1960s Lotsof became aware of the apparent ability of ibogaine to interrupt dependence on heroin and cocaine. It is a controlled substance in Belgium and the United States, and for this reason several U. S. citizens have been brought to Holland to undergo treatment with the substance. The method of treatment with the drug to arrest addiction to opiates, amphetamine, alcohol, and nicotine is the subject of a number of U. S. patents held by Howard S. Lotsof.

Although ibogaine is the principal alkaloid of the Iboga plant, it is also obtainable from parts of the Voacanga plant. Investigations undertaken for this study show that ibogaine would be present in Voacanga seeds, Iboga whole root, and Iboga root bark at less than 0.007%, 0.02% and 0.1% w/w, respectively, neglecting any stable

derivatives of ibogaine which may be present. The total synthesis of ibogaine has been accomplished (Buchi, Coffen, Kocsis, Sonnet, & Ziegler, 1966; Duc & Fetizon, 1969), although in practical terms isolation and purification from Iboga plant material is the most obvious source of ibogaine (Dickel, Holden, Maxfield, Paszek, & Taylor, 1958). Much of the previous information was unknown to us during the early part of the study, and neither did we fully appreciate at the time that what we were doing was not so short of a Phase 2 trial of a new and experimental treatment.

Materials and Methods

Some accounts have tended to dwell on the primary effects of ibogaine: the lucid visions and emergence of repressed memories that are experienced by individuals taking the substance at high doses. Notwithstanding the enormous difficulties of maintaining contact and monitoring the drug use of individuals for extended periods after taking ibogaine, it was our primary objective to document the secondary, long-term effects of ibogaine on opiate consumption in the weeks and months subsequent to taking the drug. The author and two other primary workers undertook this study with a number of other trusted individuals assisting at various stages. By these means we observed and documented the immediate and longer-term effects at high doses of ibogaine on the subjects in this study.

It would have been impractical for us in the circumstances of this study to have attempted a routine objective assessment of the subjects' hard drug use after taking ibogaine, for example, by obliging the subjects to undergo regular urine analysis, but nevertheless we believe that the reports and observations of the subjects' drug use subsequent to taking ibogaine are an accurate reflection of the true situation. By this time the subjects had become well known to us, and we cite the frank admissions by some of the subjects of a small sporadic amount of drug abuse after taking ibogaine, which we attribute to residual habit, as evidence of the authenticity of the remainder of the reports and observations. It is admitted, however, that the present study is flawed in this respect. In any event, because it was directly and repeatedly observed by the primary workers in this study, we believe that there can be no doubt about the essential loss of opiate craving and absence of withdrawal (commonly referred to as "cold turkey") experienced by the subjects in the immediate period after taking a single high dose of ibogaine.

Documented in this study are six heroin-addicted individuals and one subject who was addicted to codeine. The subjects took ibogaine at doses ranging from 700 to 1,800 mg (Table 1). With the exception of one Swiss and one British subject, all of the subjects were Dutch. All had expressed a desire to end their drug abuse, and the ibogaine was orally self-administered in each case. The first six subjects took

organically derived ibogaine hydrochloride, which was independently confirmed as being of greater than 98% purity. The remaining subject, NL7, was treated from a second batch of ibogaine of identical origin. The dosages were normally in the form of previously prepared 100-mg or 200-mg capsules. In each case the subject was counseled and took a dose of ibogaine, either 100 mg or 200 mg, followed 1-2 hr later by the remainder of the dose.

Table 1. Subject Data and Treatment Dosages

Subject	Age	Sex	Weight	Addiction	Ibogaine Dosage
NL1	32	M	65kg	Heroin (250mg/d) Methadone (65mg/d) Alcohol	1,600mg
NL2	25	F	48 kg	Heroin (250 mg/d)	1,200 mg
CH1	21	M	60 kg	Heroin	700 mg
NL3	33	M	72 kg	Heroin Methadone(30mg/d)	1,800mg
NL4	25	F	49 kg	Heroin (1,000 mg/d) Methadone	1,000 mg
UK1	39	M	68 kg	Codeine (100-250 mg/d)	1,000 mg
NL7	30	M	70 kg	Heroin Alcohol	1,100 mg

/d = Subjects' claimed daily drug intake. There was little or no attempt to verify the subjects' precise intake prior to taking ibogaine. Where no amount appears, the data were not obtained.

Results

Four individuals with whom contact was lost do not appear in this study, one of these (NL5), a male who was addicted to heroin, was reported to have been drug-free for 5 days after taking a 1,000-mg dose of ibogaine. Further contact could not be maintained. Besides NL5, three other individuals are known to have taken ibogaine under some sort of supervision, but no further data were available to us. Loss of contact with these individuals was due in each case to existing subjects in the study attempting to enlist others into it.

The general pattern of effects following ingestion were as follows. About 1 hr after administration of the total dose, the subject would experience decreased muscular coordination, increased sensitivity to light, and might see visions. Around half of the subjects experienced nausea and vomiting during the early stages of ingestion. The elevated, hallucinogenic state would continue for 4-8 hr, after which they would enter

a contemplative phase interspersed with light sleep, which would last for 12-24 hr. It was during this period that lucid dreaming and emergence of repressed memories occurred. Finally the primary effects of ibogaine terminated with a deep sleep of about 4 hr. None of the subjects experienced significant opiate withdrawal symptoms on waking.

Emergence of the subject from the primary effects of ibogaine, lasting 24-38 hr, was characteristic; all subjects emerged full of vitality, and withdrawal symptoms were limited to slight nose flood, sweating, and sensations of cold in some cases. In no instance did severe withdrawal take place as might have been expected from the extended abstinence of the subject from his or her drug of addiction during the long treatment period. Increased energy, appetite, and a reduced requirement for sleep was evident for several weeks after taking ibogaine, with these effects diminishing slowly. Some of the subjects, notably NL3 and NL4, were reported to have spent the money that had formerly been required to maintain their addiction on clothes and mountain bicycles in the period immediately after undergoing the ibogaine treatment. Many of the subjects commented that the treatment environment was important to a successful outcome, and a comfortable darkened room was considered to be ideal. It was obvious that ibogaine did not suppress the desire to consume cannabis during the treatment period. Three subjects, NL2, NL3, and NL4, when interviewed several months after treatment, stated that it had taken them some months to come to terms with the psychological effects of taking ibogaine. The drug probably exerts a strong social influence in its areas of widespread use, possibly a cohesive effect reinforcing the tribal and religious sects of the indigenous people of Equatorial Africa. Several of our subjects had evidently been very impressed by their experience, particularly the extended period of emergence of repressed memories. None of the primary workers in this study took ibogaine themselves, and so it remains purely a matter of speculation, but it may be that the repeated, recreational use of ibogaine at moderate doses could result in an enhanced ego and sensations of godliness. At the higher doses typical of those used in the present study, however, it seems that a proportion of individuals will thereafter have no desire to take ibogaine again.

Physical side effects reported during the ibogaine treatment procedures documented here include weight loss (NL3 4 kg, NL4 3 kg, NL7 3 kg), extreme sensitivity to (red) color and sound (NL2), ataxia (NL2, NL3), diarrhea (NL1, NL2, NL3, NL4, NL7), backache (NL7), and nausea and vomiting (CH1, NL3, NL5). A strong aphrodisiac effect was reported by NL3 among others, but in at least one subject (UK1, who was homosexual) this effect was completely absent. Side effects that receded completely in the weeks after treatment were concentration difficulties (NL2, NL4), sudden spells of tiredness up to 2 weeks after treatment (NL4), sudden loss of coordination and

"going cross-eyed" up to 3 weeks after treatment (NL3), and insomnia (NL3, NL4, NL7).

Case Reports

NL1 was probably the most severely addicted subject in the study and had been abusing heroin for 12 years, except for 1 year during a residential detoxification program. As well as daily injecting heroin and a regular intake of methadone, he took alcohol to intoxication in 15 out of 30 days prior to taking ibogaine and was inebriated with heroin and methadone at the time of treatment. He took methadone shortly afterward "to see what it was like" and, being dissatisfied with the effect, remained drug-free until a trip to India. It was during this trip that his heroin abuse recontinued. Three months later he expressed his desire to repeat the ibogaine treatment but was unable to do so. This subject has been independently documented (ICASH, 1990a).

NL2 was a partner of NL1 and had been abusing heroin for 4 years prior to treatment, although a 15-month remission in her drug taking had occurred that had ended 6 months previously. For 3 months prior to taking ibogaine, she had been smoking heroin daily. The subject panicked, fearing withdrawal, and took heroin during the treatment period, but it had little effect. This subject has also been independently documented (ICASH, 1990a), and a personal account of her experiences is in circulation (ICASH, 1990b). Following an extended period after taking ibogaine during which she remained drug-free, this subject reverted to intermittent use of heroin to combat period pains, a level of consumption that she gave every indication of being capable of sustaining.

CH1 had been sniffing heroin daily for over 12 months prior to treatment and was being cared for and discouraged from heroin abuse by a nonaddicted male friend in what appears in retrospect to have been a classic addict/co-addict syndrome. CH1 had been injured in two industrial accidents to which a contributing factor was his background of drug abuse and intoxication at work. This subject took the lowest dose of all the subjects but despite the treatment initially appearing to have an encouraging outcome, drug abuse recontinued after only 2 days. He was observed for several days 3 months after treatment and was entirely free of heroin use during that time but the treatment was otherwise completely unsuccessful.

NL3 had a long history of hard drug abuse, being addicted to heroin for 12 years and both heroin and methadone for 4 years prior to treatment with ibogaine. He also had a hepatitis condition. Heroin was being injected intravenously up to and including the eve of treatment with ibogaine. This subject took the highest dose of all the subjects and experienced the most marked side effects, including temporary paralysis of the leg 3 days posttreatment. The duration of ibogaine psychoactivity was also

particularly long. The subject smoked heroin three times against insomnia shortly after treatment but otherwise completely abandoned his addiction to both heroin and tobacco, also reporting a reduced alcohol consumption in the months after taking ibogaine.

NL4 was a partner of NL3 and had been addicted to heroin for 6 years, smoking heroin daily at the time of treatment. Ibogaine psychoactivity lasted 38 hr with no nausea. She suffered concentration difficulties for over a month after taking ibogaine, saying that she was "very introspective" during this period. The subject also gave up tobacco and said that she feels relieved and happy to be free from her heroin addiction. Her gain in weight and general healthy appearance several weeks after taking ibogaine was the topic of some comment.

UK1 was a worker in a medical environment, giving him ready access to the codeine tablets to which he had become addicted. He was an experienced drug user and had been addicted to heroin several years previously. He was the only subject to have taken ibogaine while not under immediate supervision. The substance was taken according to written instructions, and he spent most of the treatment period alone and in a contemplative mood. A liveliness characteristic of the immediate aftereffects of ibogaine was evident when the subject was seen a few days later, at which time he reported that he had been able to cease his codeine consumption immediately. His alcohol consumption also fell. He likened his sense of rejuvenation after taking ibogaine to that felt after a 2-week holiday abroad. NL7 had been addicted to heroin for 10 years. He was smoking heroin several times a day immediately before taking ibogaine. He was sympathetically cared for by NL3 and NL4 and stayed with them for several days after the treatment. He took heroin once during this period of care, subsequently flushing a remaining quantity of heroin down the toilet. His alcohol consumption also fell. Some weeks later NL7 cheerfully reported that the "highs" he now experienced from heroin were clearer and more enjoyable: "It was like starting again from the beginning." Later he expressed a desire to repeat the ibogaine procedure, but by this time our supplies of the drug were exhausted. Seventeen weeks after taking ibogaine, his addiction to heroin was approximately as severe as it had been immediately prior to treatment.

Discussion

Treatment with ibogaine visibly alleviates morbidity and appears to remove an addicted individual's desire to seek and use narcotics. Several subjects took heroin again shortly after treatment but found the effect to be unsatisfying; ibogaine may possess some subtle, short-term antagonistic effect on subsequent opiate use. Many of the subjects also stopped smoking or excessive alcohol consumption after the

treatment. Some of the subjects found the idea of undertaking the treatment an attractive proposition to which a contributory factor was the natural origin of ibogaine. Others were surprisingly cautious about taking another drug, considering their existing regular drug intake, and suspicions that we were attempting to get them hooked on another drug were occasionally voiced.

The side effects of ibogaine both during and after treatment are almost certainly dose-related, and differing opinions emerged during the latter part of the study as to the dosage and treatment strategy that should be recommended to individuals who wish to take ibogaine in an attempt to arrest their drug dependence. It became the view of the author of this report that the dosages recommended by the U. S. proponents of ibogaine were excessive. It is with regret that sufficient supplies of the substance were not available to us to try an alternative approach, such as short-term maintenance therapy with dosage levels just sufficient to allay opiate withdrawal symptoms. However, in the strategy utilized in this study, it must be admitted that high doses did appear to have a significant influence on whether the subject achieved a successful interruption in drug abuse. Taking just one example from our data, the Swiss subject CH1 received the lowest dose of all the subjects, and his treatment gave the least satisfactory outcome. Such a trend might already be observable in the small number of subjects documented here (Table 2), but the number of subjects in this study is considered to be inadequate for any serious statistical analysis.

Some individuals may be hypersensitive to ibogaine, and for this reason a trial dose of 100 mg or 200 mg was invariably given to our subjects prior to ingestion of the remaining, larger part of the dose. We have received reports of two fatalities that have occurred while taking ibogaine: in the United States a person taking an unknown dose committed suicide, and in France a young woman experienced breathing difficulties approximately 4 hr after ingestion of 400 mg. In this instance the drug was being used as an adjunct to group psychotherapy and the possibility that multiple drugs were involved has been raised. From early investigations by Ciba using doses of 50-300 mg, ibogaine is known to provoke variable responses between different individuals and in the same individual when administered on different occasions. It was suggested that this may be due to slow and irregular absorption of the drug when taken by the oral route and that this complication can be obviated by parenteral administration. In comparison with the 25 mg/kg elevated doses taken by some of the subjects in this study however, such considerations may seem subtle.

Table 2. Ibogaine Dosage/Weight Ratio and Treatment Outcomes

Subject	DWR	Outcome

NL1	24.6	Took methadone 2 days p/t To 10 weeks p/t confirmed d-f Relapse to regular heroin use 11-12 weeks p/t 12 months p/t total relapse, worsening
NL2	25.0	Took heroin once during treatment Confirmed d-f to 3 months p/t 4 months p/t intermittent heroin use 8 months p/t intermittent heroin use 10 months p/t intermittent heroin use 12 months p/t apparently healthy
CH1	11.7	2 days p/t relapse to regular heroin use 3 months p/t 5 days observed d-f 8 months p/t injecting heroin
NL3	25.0	Took heroin 3 times in 2 weeks p/t Otherwise, to 18 weeks p/t confirmed d-f
NL4	20.4	To 17 weeks p/t confirmed d-f
UK1	14.7	To 1 month p/t confirmed d-f To 14 weeks p/t confirmed d-f
NL7	15.7	Took heroin 4-5 times in 3 weeks p/t 6 weeks p/t "needs retreatment" 10 weeks p/t almost daily heroin use 17 weeks p/t taking methadone

DWR = Dosage/Weight Ratio: dosage of ibogaine divided by the subjects' body weight, in mg/kg. p/t = posttreatment. d-f = drug-free, no hard drug consumption up to and including the observation date except in the instances stated. The treatments took place between October 1989 and August 1990.

If a second study involving ibogaine were to be undertaken, one potentially promising strategy may be to offer the subjects incremental doses of ibogaine until their opiate cravings were successfully displaced; this approach might minimize the side effects and risk of psychological trauma associated with high doses and still be effective. We would also attempt to devise a controlled study using the Himmelsbach Scale to measure the degree of withdrawal experienced by the subjects. A more obvious but very probably unsatisfactory approach would be to use another psychotropic substance, for example, the psilocybin that ibogaine possibly most resembles in some of its effects, as the control substance. This latter strategy would be likely to be fraught with difficulties, not least the possibility of physical danger to a member of the control group undergoing acute opiate withdrawal. The design of a truly controlled and ethical trial of a substance like ibogaine, which is strongly psychoactive at its therapeutic dose, could be regarded as a challenging academic exercise. Besides contention about the dose, conflict also arose within the study group during the final stages of the study due to the strong view of one of the primary workers that approval

from the subjects should be sought before circulation or publication of any documentation. This was considered by the author to be irrelevant at the time of compilation of the first draft of this report and in some respects inadvisable. It was also proposed that the nationalities of the subjects and the personal relationships between them should be withheld from the report. The recriminations and bad feeling resulting from these disagreements account to a large extent for the delay in submitting this information in a form suitable for publication. In actuality the commitment of the author to documenting ibogaine's activity was originally instigated at the direct and concerted request of NL2, NL3, and NL4.

There are considered to be a number of possible modes of action of ibogaine, some or all of which may contribute to its ability to interrupt opiate (and other) addictive syndromes:
1. suggestive, the placebo effect
2. metaphysical, in that the subject is carried away on a "trip" and returns to a new beginning
3. physical/psychological, in that the vomiting and physical emptying give a sense of cleanliness and renewal
4. physically psychological, an "endorphic reset" such that the receptors responsible for addiction are reset to their normal, nonaddicted state. It is not the objective of the present study to investigate the complex actions and interrelations of various neural receptors and here a simplistic mechanism of central endorphin stimulation is assumed. If it is the case that ibogaine possesses an ability to rapidly restore endorphin production to a level sufficient to allay opiate withdrawal, this property may be linked in some way to its strong aphrodisiac properties. This effect of ibogaine has been known for many years and was independently (because it was not included in our counseling) remarked upon by some of the subjects. Opiate-addicted individuals show a marked disinterest in sex; their normal sexual/pleasure-seeking drives have apparently been efficiently satisfied by the synthetic endorphin analogue upon which they have become dependent. A similar correspondence in neural mechanisms might be inferred from the fact that naltrexone, an opiate antagonist, has been successfully used to give long-term therapeutic benefit in the treatment of the self-injurious behavior (SIB) that is frequently to be found in womens' prisons, childrens' homes and institutions for the mentally ill or disadvantaged (Barrett, Feinstein, & Hole, 1989). This association between self-injury and hard drug abuse might point to a physical psychological origin of the destructive drive displayed by individuals who allow themselves to become caught up in addictive syndromes.

Conclusion

Some reports have suggested that ibogaine may possess a superior efficacy in the treatment of cocaine addiction, but no attempt was made in the present study to test this claim. After observing ibogaine's effect on addicted individuals, some of whom were in an advanced and severe state, we believe that the risks of taking ibogaine can be outweighed by the advantages. Claims by Lotsof (1986, 1991) that hard drug use is interrupted for 6 months cannot be substantiated by this preliminary data, but a remission in hard drug use could perhaps be reliably achievable. From a pragmatic point of view, the withdrawal-attenuation effect alone should warrant further investigation of the therapeutic action of ibogaine in treating opiate dependence. If, as we believe, a temporary interruption in drug abuse can reproducibly be obtained with the drug, this would provide a valuable opportunity for reflection and self-appraisal for individuals who have lost control of their addiction. At this stage also, serious physical disorders are sometimes found that had hitherto been completely masked by narcosis. At the very least ibogaine treatment could provide an occasion for a review of personal health for individuals who would otherwise be in a state of acute and intractable opiate dependence.

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