RESPONSE OF CLUSTER HEADACHE TO SELF-ADMINISTRATION OF SEEDS CONTAINING LYSERGIC ACID AMIDE (LSA)

R. Andrew Sewell MD1, Kyle Reed2, Miles Cunningham MD PhD2
1Yale University School of Medicine, New Haven, CT and VA Healthcare System, West Haven, CT
2Neural Reconstruction Laboratory, McLean Hospital/Harvard Medical School, Belmont, MA

Objective

This study was intended to explore whether lysergic acid amide (LSA), a naturally occurring and legal (to possess) analogue of LSD found in the seeds of the plants morning glory, Hawaiian baby woodrose, and ololiuhqui (Rivea corymbosa) has therapeutic effects on cluster attacks, cluster periods, or remission periods.

Background

Cluster headache is a rare syndrome of circadian-linked headaches that have accompanying autonomic signs such as pupils, miosis, rhinorrhea, and a compulsion to pace about or bang the head. The intensity of these attacks is severe enough that patients have been known to commit suicide to escape the pain. Anecdotal evidence suggests that both lysergic acid diethylamide (LSD) and psilocybin may produce stunning remissions in the disorder, often at sub-hallucinogenic doses (Mathias et al., 2005, Sewell et al., 2006, Sampors et al., 2004) Increasingly, patients have been using LSD to self-treat their disorder, because it is legal and more readily available than either LSD or psilocybin.

Methods

367 patients in a pre-existing registry of cluster headache patients who have agreed to take part in clinical trials or cluster headache surveys were surveyed to determine whether they were using LSD-containing seeds to self-medicate their cluster headache. 66 subjects either were currently or had done so. Those meeting inclusion criteria were interviewed to determine the effects of LSA on their cluster attack intensity and frequency, as well as cluster period and remission period length. We included all respondents when:
- reported cluster headaches
- had attempted self-treatment with LSA-containing seeds
- agreed to be contacted for evaluation by telephone or e-mail
- allowed us to obtain copies of their medical records.

Outcome measures

- An abortive treatment: effective (a 20-min decline or ineffective
- A prophylactic treatment: effective (causing total remission of the cluster period), partial effective (causing diminution of cluster attack frequency or intensity), ineffective (no change noted)
- For remission extension: effective (a delayed or missed cluster period), or ineffective (a subsequent cluster period at the expected time)
- The Birkedahl-Riechel Scale (BRS) and Peak Experience Profile (PEP) were administered in order to quantify the strength of the subjective effects experienced.
- Subjects were also asked to send a 1g sample of the seeds that they had ingested for quantitative analysis of LSA content.

Results

Seed analyses revealed wide and unpredictable variations in alkaloid content; consequently, the dosage self-administered by patients ranged from 0 mg to 2.8 mg.

- Of the four subjects who ingested LSA-containing seeds during a remission period in order to extend the remission period, all four reported skipping their expected next cluster period. Two of them sent in seed samples, and had ingested 1.1 mg and 2.8 mg respectively.

Conclusions

Alkaloids in seeds known to contain LSA may be effective in aborting cluster attacks, terminating cluster periods, and extending remission periods, possibly through a mechanism unrelated to the seeds’ hallucinogenic effects. No conventional medication either terminates cluster periods or extends remission periods. Patients should be aware of the increasing popularity of this method of self-treatment among their patients.

References


Fig 1: LSA-containing plants

Fig 2: Path of seeds through study

Fig 3: Concentration of total alkaloids in seeds, friends, and seeds reconstituted at 1g

Fig 4: Thin-layer chromatography (TLC) extraction of LSA

Fig 5: Comparison of chemical structure of LSA with other alkaloids

Fig 6: Lysergic acid and other alkaloids absorbed orally and sublingually

Fig 7: Comparison of chemical structure of LSA with methysergide and DHEA, both validated treatments for cluster headache.

The authors wish to thank Seth Hollub for funding the project through a grant to the Multidisciplinary Association for Psychedelic Studies (MAPS), Clusterbusters for supplemental funding, and Earth and Fire Erowid, both groups that are recognized by the Multidisciplinary Association for Psychedelic Studies (MAPS) as legitimate organizations with clear goals and values in conflict with theMAPS's vision.