Cannabis Analgesia

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WHEN O'Shaughnessy introduced cannabis into Western medicine in 1839, he reported, on the basis of experiments with patients, that tincture of hemp was an effective analgesic.[1] In this and a variety of other indications the drug achieved popularity in medical therapeutics during the latter half of the nineteenth century.[2] Dr. J. R. Reynolds, speaking from 30 years of experience, referred to it as "by far the most useful of drugs" in treating painful maladies.[3] Hobart Hare, in his textbook, called cannabis "very valuable for the relief of pain."[4] Reviewing his extensive experience, Dr. J. B. Mattison lauded it as "a safe and successful anodyne."[5] And no less authority than Sir William Osler stated in his textbook that the drug was "probably the most satisfactory remedy" for migraine.[6] Our purpose in this brief communication is to consider these claims and present a number of case reports in the hope of stimulating further interest in the analgesic potential of cannabis.

Despite enthusiastic endorsement, cannabis preparations fell from favor because of their variable effects and the introduction of alternatives.[7] Aspirin and the barbiturates became popular, and the hypodermic syringe made rapid delivery of water-soluble opiates possible. The latter were naturally preferred over the less potent and slower acting cannabis extracts. The variable response to these preparations was generally attributed to their instability and uneven strength; however, individual variation in their effects was also recorded. One early observer, for example, reported that labor pains, if not relieved, might be intensified.[8]

A number of early pharmacologists recommended cannabis for functional pain; that is, pain associated with anxiety and aggravated by its meaning for the patient. Prominently mentioned indications were dysmenorrhea, migraine, labor pain, and the pain of terminal illness. Its tranquilizing and sedative properties were felt to enhance its value in these indications. Hare, who held its tranquilizing properties in high regard, made the following observation regarding its influence on the pain experience: "During the time that this remarkable drug is relieving pain a very curious psychical condition sometimes manifests itself; namely, that the diminution of the pain seems to be due to its fading away in the distance, so that the pain becomes less and less, just as the pain in a delicate ear would grow less and less as a beaten drum was carried farther and farther out of the range of hearing."[9] And suggesting a link between the consciousness-altering and analgesic properties of the drug, he added that this effect was "probably associated with the other well-known symptom produced by the drug; namely, the prolongation of time."

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Recently there have been limited accounts of analgesic action on the part of cannabis, but no systematic investigations. Chopra and Chopra, reporting upon the drug's use in India, both as a medicine and home remedy, described its utilization for pain relief.[10] Parker and Wrigley found that 60 mg of pyrahexyl produced marked analgesia in themselves.[11] And in a recent report, Ames described a variable response to cannabis.[12] He observed that one subject found venipuncture agonizing, whereas another reported analgesia. Such a capricious response suggests that its analgesic properties may be mild and that the expectations of the patient and the setting in which the drug is taken may have a strong bearing upon its effect.

CASE REPORTS

Five individuals were located by informal contact who described pain relief associated with smoking marijuana. Their reports are as follows:

Case 1

A 31-year-old married commercial artist reported using marijuana for the relief of postsurgical pain following a tubal ligation. After surgery she experienced sharp, stabbing pains bilaterally, which were accompanied by considerable anxiety. She estimated that the pain was moderate in severity. As a result of it she smoked marijuana continuously over a 3-week period. Analgesic effects generally began about 30 min after smoking and persisted for 3 to 4 hr. She obtained complete relief and did not find it necessary to use other drugs during this period. Other effects consisted of altered time sense, euphoria, heightened perception, and profound relaxation, all of which began within 1 min of smoking. The dose required for analgesic effect, she felt, was somewhat greater than that which she ordinarily used on social occasions. She attributed pain relief to relaxation and to an emotional acceptance of the surgery that the drug seemed to afford her. On several occasions prior to surgery she had smoked marijuana for menstrual discomforts. She did not describe these as painful but as unpleasant abdominal tightness accompanied by tension. Both were completely relieved by smoking.

This young woman experienced considerable anxiety in connection with her tubal ligation, which she related to its psychological impact. It was the first major decision she had made in her life, and it symbolized, for her, liberation as a woman. In taking this step she went against the wishes of her husband and departed from her accustomed role as a woman.

For several years prior to being interviewed this woman had used marijuana once weekly to enhance the pleasure of social gatherings. She reported no ill effects from its use.

Case 2

A 24-year-old single candidate for a master's degree in creative writing claimed to have used marijuana for migraine headaches for a year and a half. At the unofficial suggestion of a neurologist, he experimented with the drug and, finding it effective, used it in lieu of ergotamine tartrate on six or more occasions. Each time he claims to have prevented or substantially attenuated a headache. Those that developed lasted less than 4 hr and were mild in intensity. He had been particularly aware of the relaxing effect of the drug because migraine attacks generally aroused considerable anxiety within him. The effects of smoking for migraine were different from those experienced with a comparable dose on social occasions. Euphoria was absent and drowsiness developed, which helped him sleep and thus avoid further symptoms. He rated Cafergot PB (with phenobarbital) as slightly superior to marijuana in preventing headaches. During the past year he claimed to have diminished the frequency of migraine attacks by smoking. His twice-weekly use of the drug had, he felt, interrupted the buildup of tension that had typically preceded them.

Migraine developed in this man at age 12. Prior to the onset of severe headaches he experienced scintillating scotomata, numbness of the left arm, tingling of the nose, and slurring of speech. When severe, they occurred twice monthly and lasted from 12 to 48 hr. For several years prior to his use of marijuana, he had successfully prevented headaches with ergotamine tartrate.

This young man began smoking marijuana at age 19. His twice-weekly use of the drug caused no ill effects except for "fuzziness of thought" the day following use. He had observed a change in attitude toward himself and his environment in recent years, however, and speculated that marijuana might have contributed to this. He had turned from a life of intense striving toward one of unhurried contemplation. Marijuana had, he felt, allowed him to see life more clearly and appreciate it more deeply than he might otherwise have done. He questioned whether or not it might have undermined his initiative or robbed him of long-term goals.

Case 3

A 30-year-old married housewife claimed to have used marijuana for the relief of headaches and other minor discomforts for over a year. She discovered its value while smoking and, coincidently, suffering from a headache. She described immediate and lasting relief from a dose similar to that used on social occasions. This was associated with a reduction in tension. In her experience marijuana had been superior to aspirin, the only other medication she had used. She discovered that the discomforts of colds and sore throats could also be relieved, as could abdominal cramps related to colitis and menstrual discomforts.

This young woman began experiencing headaches of a throbbing character as a child. They had been occipital in location, moderate in severity, and twice weekly in frequency. Often associated with anxiety-provoking family problems, they had once or twice a year interfered with household duties.

Two years prior to being interviewed, this woman had begun using marijuana. To begin with she had smoked on weekends, but later launched into a period of daily use for pleasure and the enhancement of her sex life. Marital discord developed during the period of daily use, however, and this ultimately caused her to reduce its frequency. During the period of heavy use she had found herself continuously intoxicated and chronically fatigued.

Case 4

A 26-year-old single guidance counselor claimed to have used marijuana for the relief of menstrual cramps for over a year. She was prompted to experiment with its use by an awareness that simple relaxation caused a lessening of her discomforts. The relief she obtained from smoking was prompt, complete, and consistently superior to that from aspirin. It was accompanied by substantial relaxation, mood elevation, and, quite often, sedation. Use of the drug brought immediate relief, which persisted for 2 hr, after which she generally slept. Associated with it she experienced a loss of short-term memory, a slowing of time, and heightened perception.

This young woman experienced the onset of dysmenorrhea shortly after her menarche at age 12. She described the pain, occurring in her lower abdomen, as mild and shooting in character. It typically began 2 days prior to the onset of menstruation and persisted for a day thereafter. Occasionally it caused her to miss school or work. She had never consulted a physician for this problem and had used no drugs other than aspirin. The pain was regularly accompanied by dysphoric mood and anxiety. Headaches, nausea, and blurring of vision were often experienced as well.

At age 20 this woman had begun smoking marijuana for pleasure and relaxation. In addition, she felt that it had increased her interpersonal sensitivity. The frequency of her use increased over the years, reaching a frequency of every other day. She reported no ill effects from its use.

Case 5

A 25-year-old single graduate student discovered, on the recommendation of a friend, that marijuana relieved headaches. She reported smoking the drug occasionally for that purpose for more than 2 years. Though often complete, the relief she obtained was not consistent. She believed she had benefited from smoking only about 70% of the time. Occasionally the relief had been brief (15–30 min). The dose was similar to that used on social occasions and produced mental effects, including euphoria and heightened perception, which were similar. She observed relief from anxiety along with analgesia. On the basis of her experience she compared marijuana favorably to aspirin, Darvon, and antihistamines, but observed that Excedrin, combined with sleep, had been superior.

This young woman's headaches began in grade school. She described the pain, which typically encircled her head, as intense and throbbing. It was often accompanied by photophobia and heightened sensitivity to noise. Emotional stress often precipitated these occasionally disabling headaches.

Five years prior to being interviewed, this woman had begun smoking marijuana. Usually she had smoked once or twice weekly for pleasure and relaxation. She believed that doing so had improved her concentration and ability to complete schoolwork. She noted that it had often been an escape, but reported no other ill effects from its use.

DISCUSSION

These reports were readily obtained and enthusiastically offered. Whether they are representative is uncertain. They seem to suggest that marijuana, by influencing the subjective state of an individual, may, like hypnosis, alter his reaction to painful sensation. Hypnotic analgesia, which is particularly effective in functional pain, has been explained on the basis of anxiety-reduction and altered attention (suggestion) associated with the trance.[13,14] The individuals whose experiences are reported here all commented upon the relief of the anxiety that accompanied analgesia. The importance of this factor in the pain experience has been amply demonstrated by Beecher's study of significance of wound pain and by reduction of intractable pain following lobotomy.[15,16]

The individuals whose experiences are reported here also described alterations in consciousness typical of marijuana intoxication. Like the hypnotic state, this involved heightened attention within a narrow segment of awareness together with a reduction of attention outside of that segment. Just as suggestion serves to intensify attention in one area and reduce it in the general field of awareness, so marijuana may do likewise. The capricious action of the drug may be related to this very phonomenon. It is a common experience of marijuana smokers that unpleasant stimuli may be intensified if attention becomes focused upon them. Thus pain might, on occasion, be heightened rather than reduced.

There are indications that the active ingredient in marijuana may be a mild, though effective, analgesic that is efficacious in functional pain. It would appear to be variable in its effect and, like the mental manifestations of the drug, highly subject to the influence of suggestion and the expectations of the individual. Its value as an analgesic would be enhanced, however, by its low toxicity, its lack of potential for addiction, and its minimal disturbance of vegatative functions; Δ^9-tetrahydrocannabinol should, therefore, be subjected to systematic study in patients, and its pain-relieving effects compared with those of aspirin and morphine, the standards by which analgesics are measured. A preliminary trial in 10 cancer patients has shown oral Δ^9-tetrahydrocannabinol to have analgesic properties significantly superior to placebo in doses of 15 and 20 mg.[17] Further investigation of these properties is under way.

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