

Marijuana and Chronic Nonmalignant Pain in Adolescents

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Chronic nonmalignant pain in children and adolescents occurs worldwide and can be associated with a lower self-reported quality of life.¹ Headache, abdominal pain, or musculoskeletal pain is the most common complaint. Comorbid symptoms such as fatigue, sleep disturbance, depression, and anxiety may exacerbate pain and contribute to notable disability, psychological distress, and impaired functioning.² Patients may find it difficult to attend school, concentrate on homework, socialize with friends, or engage in physical activity—ie, activities at the core of being a normal adolescent (patients 13-17 years of age)—due to ongoing pain.

In affected adolescents, evaluations and medical tests may be undertaken over months or longer, with protracted investigations often failing to determine the etiology. Many patients have had unsuccessful medication trials and procedures engendering frustration that “something is being missed.” Patients expect a “quick fix” that, when not forthcoming, may cause them to turn to alternative treatments. Marijuana is one such treatment. Given its widespread availability throughout the United States and expanded use for medical conditions, it is reasonable to anticipate increasing numbers of adolescents turning to marijuana to treat chronic pain.

There is a paucity of original research data regarding risks and benefits of marijuana use for treating chronic pain in adults,³ and there is even less data for treating adolescents. Although benefits may accrue in specific conditions, adverse effects influencing daily functioning (eg, impaired concentration or lengthened reaction time when performing tasks) often limit treatment. More studies are needed in all ages of patients to determine if marijuana effectively reduces chronic nonmalignant pain, without major adverse effects worsening debility.

We could find only one study describing marijuana use to manage pain, mood, and

sleep disturbances in an adolescent population.⁴ A limitation of this study was its failure to describe participants' ability to function daily while using marijuana. In this commentary, we describe how marijuana use in 3 adolescent patients presenting to a pediatric chronic pain clinic may have contributed to their functional difficulties. We offer speculative synthesis about the consequences of marijuana consumption and appropriate methods for patient management. During their evaluations, the described patients volunteered that they used marijuana regularly. Urine drug screens are not routinely performed in our clinic and were not used to evaluate these 3 patients. Institutional review board approval was obtained before reporting.

Report of Cases

Case 1. A 17-year-old girl had a 2-year history of nausea, fatigue, and multiple pain complaints including headache and abdominal, flank, and generalized body pain. After extensive evaluation, she had been diagnosed as having postural orthostatic tachycardia syndrome, chronic pain, and generalized anxiety disorder. The medication trials she had undergone were either short-lived or insufficiently dosed. Neither antidepressant nor anticonvulsant medications used to treat pain had been prescribed, but hydrocodone-acetaminophen treatment had been initiated. Despite a lack of pain relief, she continued regular opioid use. She had limited exposure to nonpharmacological strategies such as biofeedback, acupuncture, and physical therapy, which are commonly recommended for chronic pain management.

Because attending high school had proved to be physically challenging, her physician suggested online schooling. Pain limited her capacity to participate in activities with friends and family, and she reported worsening symptoms since the pain's onset. She had recently moved to live with her divorced father, with



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the intent of engaging in enjoyable physical activities such as skiing. Pain prevented her participation, however.

The patient's mother did not live in a state that had legalized medical marijuana, but her father did. When the patient's pain and insomnia persisted, her physician recommended medical marijuana for pain management and assistance in weaning from opioids. Although suggested for bedtime use only, she increased use to 3 times daily. Her hydrocodone-acetaminophen use continued unabated, and her pain did not improve.

Case 2. A 16-year-old girl had experienced headache, abdominal pain, and nausea for 18 months. Despite extensive medical evaluation, no abnormal findings emerged. Resorting to homeschooling, she reported feeling isolated and depressed. Various analgesics including injections had all proved ineffective. Antidepressant and anticonvulsant medications had not been prescribed. Acupuncture and chiropractic treatments had not helped. She saw a psychotherapist regularly for anxiety.

As her pain persisted, she began using marijuana with parental knowledge, smoking it daily despite the impaired concentration it induced that, in turn, interfered with her schoolwork. She expressed a desire to stop smoking marijuana but indicated this would be difficult because it was readily available in both of her parents' houses. At one point, she was so distraught about her pain she considered suicide with a gun kept in her father's home. Although wanting to return to school and the social interactions it would bring, she spoke of fears of being unable to achieve high grades and excel in sports. Her pain continued.

Case 3. A 17-year-old boy had daily back pain for 2¹/₂ years after falling on an icy driveway. Diagnosed with a herniated lumbar disk, he had undergone 2 epidural injections without long-lasting benefit and took prescribed muscle relaxant and opioid drugs orally without notable improvement. Other pain medications and nonpharmacological strategies such as transcutaneous electrical nerve stimulation, physical therapy, and chiropractic treatments had either failed to reduce his pain or aggravated it.

Having dropped out of school because of pain, he had hoped to obtain his general

equivalency diploma (a surrogate for a high school diploma) or attend college but had done neither due to increasing pain. His mother was concerned about his social isolation and withdrawal from physical activities he had previously enjoyed.

He revealed smoking marijuana for 2 years, and although he had initially used marijuana recreationally, he now smoked it 3 or 4 times per day in an attempt to relieve pain and improve sleep. He experienced a "high" with each use. His pain continued.

Discussion

Treatment for chronic pain starts with a thorough evaluation, and management includes appropriate prescription medications if indicated, regular physical activity, and nonpharmacological strategies with the focus on improving normal daily function. It is vital that psychosocial stressors that might interfere with function or worsen pain be addressed. Those who use marijuana for pain report doing so in response to frustration that their health concerns are not being addressed via conventional modalities.⁴

The 3 patients described in this commentary resemble most pediatric patients seen in a chronic pain clinic regarding the pain locations they report, the thorough evaluations they have undergone without a specific etiology identified, and the multiple medication trials that have failed to relieve their pain. To varying degrees, they have abandoned such normative activities as attending school or participating in regular exercise and social activities.² The main difference between these 3 cases and the typical adolescent patients in our practice is their voluntary report of marijuana use. Because drug-of-abuse screening is not currently performed in our clinic, the prevalence of marijuana use in our patients is unknown. This represents an area requiring further study.

Chronic pain affects not only these adolescents but the dynamics of the entire household. Alterations in parenting style may occur in the face of chronic pain or illness. In hopes of minimizing stress, parents may excuse adolescents from chores, completing homework, or attending school.⁵ Physicians may suggest homeschooling to eliminate another stressor that might exacerbate chronic pain. Parents may become lenient, tolerating

such undesirable behaviors as sleeping late or playing video games excessively in the belief that in doing so they are maintaining some source of pleasure for their child.⁶ Indeed, parental acceptance of adolescent marijuana use for managing pain may represent yet another example of lenience, particularly if the parents use marijuana themselves.

Despite regular marijuana use, our patients reported worsening of their pain and impaired functioning. None attended school full time, and all professed a desire to be more socially active but found it difficult to do so. If marijuana had truly been helpful, improved academic and social functioning would be expected. With up to 6.5% of high school seniors using marijuana daily,⁷ effects of their marijuana use may not be so intensely scrutinized, because most likely attend school and appear to function as relatively normal adolescents.

Adolescents using marijuana may experience long-lasting sequelae because clinical trials show marijuana to have a narrow therapeutic window. Excessive doses may induce dizziness, anxiety, sedation, fatigue, decreased reflexes, confusion, and amotivation—symptoms that many patients with chronic pain may already experience. Marijuana use may exaggerate the concentration difficulties that these patients report.⁸ Patient 1 said that her physician had advised once-daily marijuana use only. By using it 3 times daily, she intensified cognitive dulling. Patient 3 acknowledged a “high” with each use. The goal in treating chronic pain is not the “high” that recreational users seek, and intoxication may confound marijuana’s analgesic properties.

The adolescent brain is vulnerable to marijuana, manifested as persistent cognitive damage in those who smoke marijuana more than once per week. Psychotic disorders may have earlier onset in susceptible individuals who begin using marijuana before the age of 16 years and those who abuse other drugs. Furthermore, marijuana might serve as a gateway to other drugs of abuse. Their chronic pain notwithstanding, our patients may be at increased risk for dependence, particularly when poor academic achievement and a family history of substance abuse are present.⁹

Our patients resisted believing that marijuana contributed to impaired functioning. They challenged our assertion that long-term marijuana use could cause harm, maintaining they could stop at any time and denying

dependence. Moreover, at least one patient experienced a presumably reinforcing pleasurable “high” each time he smoked. All 3 patients indicated they intended to continue smoking marijuana until their pain resolved. In the chronic pain population, patients are often hesitant to eliminate anything they are using for pain management, even if it has not resulted in improvement in their pain scores. The concern for physicians is the inability of many patients to see that their functioning is not improving and may be worsening when using any substance, be it opioids, antidepressant medications for pain, or marijuana. It is this self-medication in patients 2 and 3 that is the most concerning. Up to 10% of marijuana users become addicted,⁹ a percentage that may be higher in patients with chronic pain. Even when these concerns were raised, the patients and parents in cases 1 and 3 viewed their situations as acceptable and were unwilling to change.

Recommendations

Managing chronic pain while attempting to function normally is challenging, and finding treatment for pain and comorbid symptoms can be overwhelming. The issue of self-medication only serves to complicate the situation. It is possible for outpatient pain management to be undertaken by home primary care physicians, but coordinated care of a variety of services is necessary by physicians well versed in these complex issues.

Alternatively, patients may be able to attain improved functioning and decreased pain after participation in functional restoration programs with a cognitive behavioral basis.¹⁰ With the focus on returning patients to activities such as attending school and being a normal adolescent, the goal is to foster pain coping strategies and to discontinue the cycle of fruitless medical evaluation. Those medications that have not been helpful and may have exacerbated symptoms are eliminated. Participants become empowered to learn they can return to a more appropriate lifestyle in spite of their pain and may even experience improvement in symptoms. Participants in these programs, which are available in a small number of cities throughout the world, are able to return to school after successful program participation and often experience a decrease in their pain over time once they have focused on living more normally.

Conclusion

Chronic pain in adolescents is widespread, and patients often struggle with symptoms that jeopardize normal social development. With increasing acceptance of medical marijuana use, physicians can expect that increasing numbers of adolescents will use marijuana to address pain. However, even short-term marijuana use may be associated with health and cognitive concerns that may prevent adolescents from achieving their full academic and vocational potential.

Adolescents with chronic pain should be screened for use of marijuana and other recreational substances. For those identified as smoking marijuana, education regarding its inherent dangers and alternative treatments should be offered. Optimizing function, despite ongoing pain, should be emphasized as the ultimate goal of chronic pain management, and participation in a functional restoration program may be instrumental in facilitating this transition.

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