AMERICAN ACADEMY OF PEDIATRICS

Committee on Adolescence
Committee on Substance Abuse

Marijuana: A Continuing Concern for Pediatricians

During the past quarter century, marijuana use by young people has evolved from an uncommon behavior to the current situation in which marijuana is the most common illicit drug chosen by teenagers. Among high school seniors in the United States more than half have used marijuana at least once. Approximately one fourth of these seniors reported use during the prior month, with some 4% reporting daily use. Marijuana use often begins early in adolescence with more than 25% of all teenagers reporting that they used the drug prior to entering the tenth grade.[1] This statement is an update of a previous statement written by the American Academy of Pediatrics on marijuana use[2] and is an adjunct to the Academy's statement on "The Role of the Pediatrician in Substance Abuse Counseling."[3]

Concurrent with the rapid increase in the popularity of marijuana there has been a continuing national debate regarding not only the potential health hazards of this drug but also the issues of legalization, decriminalization, and the morality of any drug use by young people. Amid this debate, pediatricians are obligated to develop a reasoned approach to dealing with marijuana use by adolescents, so they can provide appropriate care and counsel to both young people and their parents. Such an approach should be based on an appreciation of the somatic and behavioral consequences of marijuana use.

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SOMATIC CONSEQUENCES

Marijuana should not be considered a benign drug. Marijuana use has been associated with cardiovascular, pulmonary, reproductive, and possible immunologic consequences. The physiologic effects of marijuana use include accelerated heart rate and a minimal rise in blood pressure.[4,5] These effects, which appear to be secondary to β-adrenergic vascular mechanisms, are transient and usually are not deleterious to the otherwise healthy adolescent. The immediate pulmonary effect of smoking marijuana is bronchodilation. With chronic use, the smoked particles act as an irritant, causing bronchoconstriction and eventually airway obstruction.[6-9] The chronic effects of smoking marijuana are similar to those of smoking tobacco. As with smoking tobacco there appears to be a relationship between smoking marijuana and eventual neoplastic changes in the lungs.[10]

Heavy marijuana use has been associated with diminished sperm motility, decreased sperm counts, and decreased circulating testosterone levels.[11,12] Animal data demonstrate that heavy marijuana use interferes with ovulation and causes a decrease in pituitary gonadotropin.[13] This provides further cause for concern about marijuana use by adolescents still undergoing puberty. In studies involving pregnant animals, it has been shown that metabolites of marijuana cross the placenta, are teratogenetic, and retard fetal growth. However, similar studies in humans remain inconclusive.[14,15] In addition, questions remain about whether the long-term use of marijuana suppresses cellular-mediated immunity and diminishes circulating immunoglobulin, subjecting the chronic user to an increased risk of infectious illness.[16]

BEHAVIORAL CONSEQUENCES

Marijuana use can cause serious behavioral effects. Acutely, marijuana produces euphoria, relax-

ation, and disinhibition.[17] In addition, other adverse consequences of marijuana use include interference with: (a) coordination; (b) the ability to judge elapsed time, speed, and distance; (c) the ability to track a moving object; and (d) reaction time.[18–21] There is little doubt that marijuana intoxication contributes significantly to accidental death and injury among adolescents and, in particular, those associated with automotive collisions.[22]

Marijuana use also exerts a negative effect on learning and memory.[23] Marijuana intoxication causes interference with normal attention processes and with acquiring and storing information. It also reduces problem-solving skills. Individuals under the influence of marijuana have difficulty organizing their thoughts and conversing.[24–26]

An "amotivational syndrome" has been described in chronic heavy marijuana users. This syndrome is characterized by an inability to sustain attention on environmental stimuli and to maintain goal-directed thinking or goal-directed behavior.[27] An additional source of concern is the occasional occurrence of dysphoric reactions that may range from mild fear to depersonalization to frank paranoia.[28,29]

Finally, marijuana use often precedes the use of other more dangerous drugs. Although marijuana use does not necessarily predict a progression to harder drugs, the role of marijuana as a potential "gateway drug" for some teenagers must be considered.

CONCLUSIONS

1. Marijuana use continues to be widespread among adolescents.

2. The seriousness of the behavioral consequences of marijuana use is sufficient to cause great concern and prompt the pediatrician to counsel young people against any use of the drug. Such counsel should be based on health concerns, including the relationship of marijuana use to both trauma associated with intoxication and the impact on memory and learning. Additional reasons for concern, and hence counsel, include anxieties and uncertainties regarding the potential harm that marijuana use may cause to adolescents undergoing hormonal development, possible teratogenicity, and the known consequences of chronic use.

3. A psychosocial and medical assessment for drug use, including use of marijuana, should be a routine part of health maintenance for every young person.[3] Performing such assessments gives the pediatrician the opportunity to offer anticipatory guidance prior to the onset of drug use behavior, to intervene and minimize consequences if drug use has been initiated, and to detect and address issues of chronic or heavy use.

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