Improving Harm Reduction in Adolescent Inhalant Users

To the Editor: *Inhalant* is a broad term used to describe diverse substances such as nitrates, aerosols, and volatile agents.[1] In general, inhalant experimentation is prevalent in the adolescent population, with higher incidence among males compared to females. While the epidemiology of inhalant use exhibits regional variations, cross-national data suggest high rates of experimentation that can range up to 26% in early adolescence.[2] Of note, only about 4% of adolescents engage in regular use of inhalants, with reported use in 5% of American eighth graders and 3.5% of American tenth graders.[2,3] This rate increases further among at-risk youth, including children living on the streets in Asia and South America.[2]

While a plethora of inhalants exist, they all affect sensitive dopaminergic neurons within mesocorticolimbic areas leading to rewarding effects. When inhaled, these lipophilic substances rapidly enter systemic circulation, traveling through the blood-brain barrier to directly access the brain and provide a quick buzz.[3] A recent case report[4] in the *Primary Care Companion for CNS Disorders* illustrated how aerosol inhalation may serve as a gateway drug through exhibiting a protracted course that fosters the development of medical and psychiatric pathology.

Clinically relevant inhalant effects vary according to quantity and persistence of use as well as the pharmacology of the inhaled substances. Toluene is among the most popular inhalants that was initially observed as glue sniffing in the United States in the 1940s.[2] Toluene has had a recent resurgence in popularity in the form of whitener that also exposes users to xylene, acetone, and other volatile substances.[1,3] Acutely, toluene inhalation may induce euphoria, dizziness, ataxia, and even psychosis.[1] The effects of persistent use can range from neurotoxicity (eg, seizures and cognitive dysfunction) to cardiac, renal, and hematologic effects.[3] Xylene, also present in whiteners, can cause eye, nose, and throat irritation along with deleterious effects on several vital body systems. These effects can include neurological, gastrointestinal, respiratory, cardiovascular, and kidney dysfunction.[5] The diversity of clinical manifestations obscures diagnostic efforts, suggesting the need for vigilance among vulnerable populations. Clinicians should be aware of the risks of inhalant use including poverty, childhood maltreatment, and conduct disorders.[3]

Teens are particularly susceptible to inhalant use due to availability, peer pressure, and perceived safety.[1] Accordingly, primary prevention strategies to curb initiation may take the form of public campaigns to increase awareness of the risks of inhalant use.[3] In clinical practice, a provider must screen for inhalant use among at-risk adolescents to provide early intervention when applicable and to educate teens through the utilization of techniques that cater to their unique needs (eg, educational videogames and motivational interviewing). Additional measures to further harm reduction efforts would include educating clinicians on common inhalants, acute and chronic manifestations, and risks for other recreational drug use.[1,4] A combination of public health initiatives and adequate interventions at a clinical level has the potential to improve harm reduction efforts targeting inhalant use in the adolescent population.

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