Interventions for inhalant abuse among First Nations youth

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THERAPEUTIC DILEMMA

You have just moved to a new practice in a large town. There is a large First Nations population in the town and on an adjacent reserve. Shortly after your arrival, the Chief and Band Council arrange for a meeting with you to discuss the problem of inhalant abuse among youth on the reserve. What do you plan to do?

INTERVENTIONS

Inhalant abuse is the intentional inhalation of a volatile substance to achieve an altered/desirable mental state such as stimulation, disinhibition and euphoria (1). These volatile substances, including volatile solvents such as toluene or acetone, nitrous oxide or volatile alkyl nitrites are commonly 'sniffed' from an open container, 'huffed' from a rag soaked with solvent or 'bagged' with the solvent in a plastic bag (1,2). As opposed to other drugs, this abuse pattern often affects younger children, due to simplicity and ease of access (3). This is a worldwide problem that is common in individuals from minority and marginalized populations such as First Nations people. Studies have found higher rates of inhalant abuse in some First Nation populations; this is likely linked with socioeconomic status (1,4).

Inhalant abuse presents acutely with lethal conditions such as sudden sniffing death (5). In women of reproductive age, significant toxicity and teratology from inhalant abuse has been demonstrated in the form of fetal solvent syndrome or toluene embryopathy (6). Solvent misuse during pregnancy, as is the case with fetal alcohol syndrome, results in significant developmental problems and can be associated with physical malformations (5). In addition, substance abusers are more likely to be from lower socioeconomic groups and are at risk for higher rates of juvenile offenses; they may also have an increased risk for serious physical and mental impairment (7-9).

Inhalant abuse has been a chronic problem that has been known for many decades (2). Treatment for acute crisis involves mainly supportive care and has been relatively consistent from past to present (3). The degree of comorbid psychopathology and polydrug use, combined with the limited research on treatment needs and successful treatment modalities has provided clinicians with the difficult problem of treating this at-risk population of inhalant abusers (2,3). Traditionally, it has been recommended to use methods that are used to treat other addictive disorders, such as cognitive behavioural therapy, multisystem and family therapy, 12-step facilitation and motivational enhancement techniques (3). However, limited data on treatment outcomes are available and there has not yet been a definitive treatment described for preventing or reducing subsequent abuse and its sequelae.

Both neurological impairment and recovery from inhalant abuse have been demonstrated in a study conducted in Australia where inhalant abusers were compared with healthy controls to assess their cognitive function over time in rehabilitation and abstinence (10). It was found that while abusers showed many cognitive deficits upon entry to treatment, abstinent patients 'detoxify' with two to four weeks of therapy and can make significant cognitive improvements in six weeks. However, there were specific deficits, such as memory and executive function, that improved more slowly, over months and years of abstinence, and may never fully recover (10). The authors support the view that solvent users may require an extended length of stay in treatment (120 days) and promote community-based follow-ups to monitor abstinence.

Although abstinence has been shown to partially recover cognitive function in younger inhalant abusers, there is greater cognitive deficiency in older individuals with chronic exposure to solvents. A 2008 randomized control study assessed the effects of psychosocial and cognitive training therapies on adult patients with solvent-induced, chronic, toxic encephalopathy (11). The study also assessed patient effort and found that higher motivation was correlated with higher treatment satisfaction and self-reported cognitive improvement. However, objective testing results showed that results from the treatment groups were not significantly different from control groups, with the exception of memory function. Even so, the improvement of memory function was minimal and was diminished at the follow-up appointment (11).

The effects of solvents is significant in the acute setting and continues to affect cognitive function long term. Therefore, a logical approach would be to treat younger inhalant abusers before significant complications, such as solvent-induced, chronic, toxic encephalopathy, develop, with community-based follow-ups in place for monitoring abstinence. In light of these principles, a recently published article highlighted the particular success of an inhalant abuse centre (4). In 1996, the National Youth Solvent Addiction Program (NYSAP) was started as a partnership between Health Canada and First Nations peoples for the integration of both western and indigenous approaches to treating the high incidence of inhalant abuse in the First Nations communities (4). There are currently nine NYSAP residential sites with 112 residency beds for youths 12 to 26 years of age. The main approach to treatment involves merging western psychology with the cultural interpretations of connection, self-efficacy and a meaningful life. This approach creates a holistic treatment that involves the patient with his/her community and draws on First Nations culture and indigenous identity. The article describes the use of "spirit" and "universal family of creation" in promoting the resilience and emotional intelligence of the patient (4). There have been limited but optimistic treatment outcomes. Fifty per cent of youths were reporting abstinent lifestyles at the three-month follow-up, with 51% of those reporting no urge to misuse inhalants or other substances. At the six-month follow-up, abstinence numbers increased

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to 74%, with 64% of those having no urge to misuse volatiles or other substances. Fifty-four per cent of youths returned to school by three months after treatment, and this proportion increased to 84% at six months. Eighty-one per cent of youths were trouble-free from legal issues, with only 4% of youths having more than one incident with the legal system (4). These statistics are significantly improved compared with statistics from Istanbul (Turkey), where 65% of young inhalant abusers were committing juvenile offenses, with 16% of abusers having entered a correctional facility (8). It is believed that there is a significant proportion of juvenile delinquents abusing inhalants in the United States, but no studies have been performed to determine the incidence of juvenile offenses in inhalant abusers in North America (7,9).

In summary, inhalant abuse is associated with significant short- and long-term effects, such as altered mental state, sudden sniffing death, fetal solvent syndrome and solvent-induced chronic toxic encephalopathy. Studies have shown that neurological deficits from shorter-term inhalant abuse may be partially reversible, but neurological deficits from chronic exposure may be permanent. There is currently no consensus on the treatment of inhalant abuse, although some light could be shed by the NYSAP program in Canada. Thus, the principles of treating inhalant abuse should include: abstinence of substances; rehabilitation and gaining of life skills; providing psychosocial and community guidance/support for the patient in a culturally relevant context; and adequate follow-up intervals to promote and maintain abstinence and healthy function in society.

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