CASE REPORT

SPREADING TENTACLES OF SOLVENT ABUSE – A CASE SERIES STUDY

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ABSTRACT

Introduction: Solvent abuse is fast spreading among various sections of the society, with increasing urbanization and industrialization this problem is assuming significance.
Materials and methods: This case series discusses solvent abuse in five cases.
Discussion: The discussion will help in emphasizing the need for a holistic approach and stringent measures along with legal steps to deal with this menace.
Conclusion: The increasing availability and graduation to other drugs of abuse is also highlighted.

Key Words: Solvent abuse; Toxicity; Adolescents; Legal measures.

CONTEXT

Deliberate long-term inhalation of thinner for abuse purposes is a recognized problem of public health in underdeveloped countries[1]. Poor adolescent males, mainly those with familial problems, appear to be at a greater risk of consumption of these substances[1]. Toluene is a major component of organic industrial solvents and is thought to be the cause of neurotoxicity seen in solvent abusing individuals[2]. It has been established that continuing use of these substances leads to serious consequences in terms of organ damage, and degeneration[3]. Rarely irreversible brain damage can also occur[4] .Occasionally inhalation can result in serious organ system dysfunction, or may lead to a sudden death[5]. Exposure to solvents can be accidental, incidental or intentional, the latter is a cause of concern and the topic of present discussion. Accidental and incidental exposures can be harmful. Incidental exposures include occasional, brief episodic exposures, such as when a solvent is used for household purposes or when an individual fills a car with gasoline, generally such exposures are not known to pose any significant health risk. Occupational exposures can also occur at the work place [6].

Inhalant abuse is the deliberate inhalation of vapours with the intention to alter one's consciousness or become intoxicated. The popularity of inhalants (sometimes referred to as volatile substances of abuse) is greatest among young teens; these substances are appealing to adolescents as they are relatively inexpensive, legal, and readily available and can be easily concealed [1]. The "high" achieved with solvents occurs rapidly and disappears quickly, as compared to the other drugs, thus, a user can sniff after school and still return home sober[5].The inhalant abuse is widespread; however it is commonest in lower and marginalized sections of society[5-7].On reviewing the psychosocial characteristics of inhalant abusers, it was found that the families of inhalant abusers have serious dysfunctions like "family discord, aggression, hostility, broken homes, deprivation and family history of substance abuse"[8]. Inhalant abusers also manifest serious intra and interpersonal adjustment problems, may have significant psychiatric co-morbidities and may be associated with delinquency[9,10]. The usual profile of an inhalant abuser is an "unmarried, young adult male, with education till middle school ,usually unemployed or a student by profession ,belonging to an urban nuclear family of middle to lower socio economic status background ,having poor social support and having inhalant dependence , inhalant being the only substance of abuse ,or of first or second preference, abused solvent is usually typewriter erasing fluid and the mode of intake is by sniffing"[11].It was considered common knowledge that well to do and achievement oriented sections of society were not represented in the solvent abusing group, however the phenomenon is spreading into this section of the society as well. To emphasize this aspect we present a case series

CASE 1

Patient, a 19 year old male belonging to middle socioeconomic status, educated family, is studying in the 2nd year of an engineering college. He started abusing eraser fluid with his peer group out of curiosity. He had intense nausea and a decrease in

appetite; however he started inhaling the fluid once or twice and subsequently increased the consumption to a maximum of 10-12 bottles per day. He reported a pleasant, confident and grandiose feeling after inhalation; and paresthesia, agitation, anxiety and irritable behaviour on stopping it. The patient reported to having a low frustration tolerance, being restless and highly ambitious pre morbidly. After securing lesser marks than expected he started abusing solvent. The patient was admitted, a comprehensive management by pharmacological (escitalopram) and non pharmacological (cognitive behaviour therapy) methods was initiated. The subject maintained well for a year and subsequently dropped out of therapy.

CASE 2

Patient, an 18 year old 12th standard passed boy pursuing his graduation in physical education came with complaints of abuse of inhalants since 1 year. The patient started inhalant use, to beat the fatigue related to his basketball match at the national level. He found that using the substance made him alert and increased his performance. He reported of an enhanced muscle power after using the substance. He started with one bottle before his matches and rapidly increased to 4-6 bottles per day. His problem was detected when he was unable to perform well and had tremors and vomiting after the intake of 2 bottles before the match. At this time his coach found him and thought he was 'drunk'. He was subsequently referred to the de addiction OPD. His family history revealed that his father suffered from alcohol intake, was detoxified and maintaining abstinence since 5 years. The patient was a high achiever and an able sportsman. The patient was given intense structured CBT and his good motivation helped him in detoxification. A structured activity scheduling, support from friend and coach have helped him. He has been abstinent for the past 2 years and follow ups are once in 2-3 months.

CASE 3

A 24 year old male soldier was referred from the head quarters with complaints of inhalant abuse. He used to take eraser fluid about 8-10 bottles per day since the past 2 years. He had been rehabilitated twice but relapsed both the times. He curiously relapsed both the times during fall, winter. A detailed history revealed that he started abusing inhalant after being challenged by his friends during one of his visits to his home town in Nepal. Subsequently due to the easy availability, he started using it on and off. That same year during the fall he increased his intake to 6-7 bottles per day. He was sent for treatment and rehabilitation to the base hospital, he was abstinent. Subsequently in the next year, he again relapsed in the month of September-October. This time he rapidly increased his intake to 7-8 bottles per day. He was referred to the base hospital, became abstinent and joined duty after a warning. Before referral patient relapsed again for the 2nd time in the fall winter. It was found that he was unusually active, became adamant and had decreased sleep during this period. He had improved on both the occasions in the past. The patient was diagnosed as Seasonal Affective Disorder (SAD) with inhalant abuse. He was started on sodium valproate 750 mg per day along with low dose antipsychotic (risperidone 4mg/day) which was reduced to 2mg/day. Since two years, the patient has come for 4 follow ups and has been abstinent. No mood changes are reported in the patient after the initiation of treatment .His family history subsequently revealed psychosis in his mother.

CASE 4

A young adult 22 years old male came with history of increased talking, intense anxiety and abuse of eraser fluid. The intake was about 10-12 bottles/day. On not consuming the substance there was agitation, dysphoria, jitteriness, lethargy, a feeling of listlessness and tremors. The patient was found to have a history of oppositional defiance and truancy in the childhood. He was also caught jumping his hostel boundary once. He was pre morbidly an extrovert, liked to indulge in risk taking behaviours like speeding, jumping from a height, playing pranks, cheating in class, gambling. He could not remain in a single activity for more than an hour. He got bored easily and switched activities. He had a past history of a single febrile convulsion at the age of nine months for which symptomatic treatment was given. The patient was popular in his peer group and reported to a decrease in sensitivity to feeling pain. The patient was selected in a management course and subsequently passed his exams with 'borderline pass' marks. The patient was brought for consultation by the friends following an altercation and anger outburst, in which he broke the hostel window and the television. The family history was not contributory. A diagnosis of adult onset attention deficit hyperkinetic disorder (ADHD) was made, treatment by atomoxetine and symptomatically for eraser dependence was started. Till the last follow up which was after one year of abstinence, the patient was maintaining well academically and socially.

CASE 5

A young 23 year married female belonging to middle socio economic status family of urban background, educated up to post graduation came with the history of leaving a good earning job after marriage due to familial pressure, she felt bored at home and started inhaling eraser fluid out of curiosity. Initially she took it because she liked the smell of the fluid and it also helped her 'to get rest and to improve her boredom'. Gradually the patient started inhaling 5-6 bottles/day; her husband was unaware of this habit. On not taking

the liquid she felt lethargic, her work efficiency decreased and she got irritable and listless. The patient became pregnant following which she became concerned for the wellbeing of her unborn child, and came for consultation to get rid of the habit. She was diagnosed to be having dysthymia with co morbid marital disharmony .The patient was prescribed escitalopram and marital therapy was initiated. The patient continues to be abstinent even after 2 years of treatment.

DISCUSSION

Our case series show that inhalant abuse is commonly observed in the young adults, this is in accordance with the other findings[1]. The cases that we report are all meaningfully pursuing academics or coming from well to do, adjusted families ,this observation is an unusual finding in the literature[12].Positive family history was also found in one case, co-morbidity that is commonly reported in these cases was found in three of our cases, this observation is important since presence of the co-morbid psychiatric illness is an important risk factor and treating the underlying disorder helps in achieving abstinence in such cases[10]. We would like to highlight the aspect that easy procurement, legal selling, inexpensive nature, lack of knowledge, easy conceal ability and achieving a quick 'high' are some of the factors that are contributory to an increase in the solvent abuse[11].The malady is spreading its use to hitherto rare groups, like we have found in our series. This disorder is being recognized as more of a social problem arising from poverty, parental neglect, changing societal norms and soft laws[11], and leading to a serious emerging problem. Our cases do not have any of the above mentioned factors therefore newer studies are needed to look into the magnitude of the problem and its initiating and maintaining factors. Inhalant abuse is a complex, multifactorial problem. Although many adolescents may experiment transiently with volatiles to satisfy curiosity or boredom, others may become habitual users. Problem Behaviour theory[13], has tried to give an explanation to this phenomenon. As per this theory the environmental factors along with personal factors help in propagating and maintaining any problem behaviour. In our case series cases 1, 2 and 4 some what fit into this problem behaviour paradigm.

Since inhalant abuse correlates with polysubstance abuse and may be associated with violent behaviour, intervention may be more effective if it is designed to address an entire constellation of risk behaviours rather than concentrating on inhalant abuse alone [5].This aspect has been important in managing cases 2, 3 and 5 in our series. Since volatiles are readily and legally available in countless household products[14], inhalant abuse will continue until we achieve appropriate methods of prevention and intervention[11]. Inhalant abuse offers a distinct challenge to the health care provider, as prevention and treatment are associated with important co-morbid issues[10]; hence a broad holistic approach is needed to address this disorder. For the general practitioner it is important in terms of being aware of the commonly abused products, and the medical consequences of intoxication and habitual use[1]; hence a thorough history that includes questions about volatile inhalation and misuse of chemicals should be a part of every substance abuse assessment[5]. The exercise of being vigilant will help in early detection, intervention and management of such cases, and will help in decreasing the associated morbidity in a significant measure. Solvents are emerging as an important 'gateway drug' worldwide, including India[5,10]. With growing industrialization and urbanization we may encounter more of these cases. It is appropriate to formulate certain policies and laws which will help in curbing this menace. Our case series are significant as they will help in emphasizing the fact that solvent abuse is fast pervading all sections of the society, it will also contribute to the existing body of literature plus it will help in drawing the attention to the need for legal steps to curb this public health problem. Since Inhalants are freely and legally available and are abused largely by preadolescent and adolescent population, this has become a cause for concern. The Inhalants have a wide range of adverse effects on all the major systems of the body, specially the central nervous system. Inhalants may lead to more serious addictions like poly substance and intravenous drug use [12] and it may also lead to suicidal and criminal behaviour[10]. Craving is also reported by most of the cases indicating the potential for abuse or dependence of inhalants. The case series assumes importance as it can guide the organizations regarding treatment services and preventive steps which should be taken in terms of the legal control of production, distribution, sale and purchase of such substances, this aspect becomes significant since the representative national level epidemiologic data is missing in India and most of the developing countries. It becomes imperative to undertake legal measures to limit access to inhalants[11].As a conclusion we would like to emphasize the impact of solvent abuse and the magnitude of the problem; as the modern day living is associated with multiple stresses, solvents can be used as an easy escape drug. This widespread abuse can lead to serious medical, social and psychiatric morbidities[12]. The use of solvents needs a large scale monitoring and a fresh critical examination.

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