INHALANTS INDUCED PSYCHOSIS: A CASE REPORT

M.S. Bhatia¹*, Rashmita Saha², Priyanka Gautam² and Jaswinder Kaur⁴

¹Professor and Head, Department of Psychiatry, UCMS & GTB Hospital, Dilshad Garden, Delhi, India.
²,³,⁴Senior Resident, Department of Psychiatry, UCMS & GTB Hospital, Dilshad Garden, Delhi, India.

ABSTRACT

Inhalants use is predominantly seen in children and adolescents and it is becoming a matter of public health concern in countries all over the world, including India. Inhalants abuse involves the use of volatile solvents which reach brain quickly from pulmonary circulation and produce euphoria and intoxication rapidly. Inhalants intoxication involves many physical and psychological problems like impaired judgment, apathy, dizziness, visual disturbances, incoordination, lethargy, stupor or coma. We report a 20-year old case who presented with symptoms of psychosis and responded completely to antipsychotic drugs.

KEYWORDS: Inhalants, Intoxication, Psychosis.

CASE REPORT

A 20 year old boy presented to outpatient department of psychiatry with history of use of volatile solvents for last one year. He was staying in hostel and started to sniff these solvents on daily basis, with his friends, multiple times a day, with evidence of tolerance, withdrawal in the form of irritability, nausea, tremulousness, and sleep disturbance. He had strong craving for it and total amount of intake was around 300 to 400 ml per day. His academic performance deteriorated and his interaction with friends and family members reduced to minimum. When he stayed at home during his vacations, family members noticed change in his behavior. He used to remain irritable and would get angry on trivial matters. He started confining to his room for most of the time and gets annoyed when somebody entered his room suddenly. In a month family members noticed that, his behavior worsened. He keeps
muttering to self in his room and started becoming fearful for no reasons. He would say that somebody is watching him and wants to kill him. Whenever he went outside with siblings or parents, he often reported that he was being followed and would not get convinced on repeated assurance. He would often say that people in his neighborhood are talking about him, criticizing him and he could hear them abusing him, while nobody with him perceived so. There was no significant past or family history of psychiatric illness.

On examination, the patient was conscious, oriented in time, place and person and had normal vitals. There was no significant finding on general physical, systemic or central nervous system examination. Mental status examination revealed a thin built adult boy with poor grooming and retarded psychomotor activity. Patient appeared apathetic. Speech had decreased volume, tone and pressure and reaction time was increased. Thought process revealed delusions of persecution and reference and he had second person auditory hallucination.

He was started on tablet trifluoperazine 5mg and trihexyphenidyl 2mg twice a day which was increased to thrice daily after 2 weeks. Patient was minimally improved but started having extrapyramidal symptoms. The dose of trifluoperazine was decreased to 5 mg twice a day and tablet olanzapine 5 mg was added at night daily. The dose of olanzapine was increased to 10 mg at night. After two weeks when patient came for follow up, there was substantial improvement in his psychotic symptoms. The motivation enhancement therapy was started and management was focused on improving his coping skills. He could successfully quit inhalants use for next 3 months and his academic performance also improved.

DISCUSSION
Inhalants abuse involves the use of volatile solvents which include chemicals like toluene, butane, propane, 1-1-trichloroethane, aliphatic and aromatic hydrocarbons which are present in paint, thinners, typewriter correction fluids, glue, adhesives, gasoline, deodorants. They are highly lipid soluble and reach brain quickly from pulmonary circulation and produce euphoria and intoxication rapidly.\cite{1} Mechanism of action of inhalants is still unclear but fluidization of neuronal membrane, potentiation of gamma-aminobutyric acid, action on glutamate are proposed mechanisms.\cite{2} Inhalants intoxication involves many physical and psychological problems like impaired judgment, apathy, dizziness, visual disturbances, incoordination, lethargy, stupor or coma.\cite{3} Chronic inhalants abuse can damage cardiac, renal, hepatic and neurological systems and can even lead to death.\cite{4}
Inhalants use is predominantly seen in children and adolescents and it is becoming a matter of public health concern in countries all over the world, including India.\textsuperscript{[5,6]} In the United States, 22 million Americans age 12 or older have used inhalants inspire of serious toxicities used by them and it has been termed “the forgotten epidemic”.\textsuperscript{[7]}

Inhalants abuse remains the least studied form of substance abuse in spite of substantial prevalence and hence the knowledge of psychiatric disorders in such patients remains scarce. Along with the neurological complaints long term inhalants use has been seen to be associated with psychotic symptoms as delusions and hallucinations.\textsuperscript{[8]} The presence of toluene appears to has an important role in the genesis of inhalants induced psychotic symptoms, and the proposed mechanisms are increase of free intra-neuronal calcium levels and by the enhancement of dopamine release.\textsuperscript{[9-11]}

No specific tests can detect inhalants use and treatment is generally supportive. There are no controlled studies available on the treatment of Inhalants abuse but a comprehensive treatment plan should be advocated which should include detoxification, assessment of physical, cognitive, and neurological deficits, building new strength, training for therapists, attention to personal issues and rehabilitation.\textsuperscript{[12,13]}

This is case of Inhalants induced psychosis. The effects of Toluene on presynaptic terminals leading to enhancement of dopamine release can be the mechanism. Inhalants are known to cause brain damage and functional impairment\textsuperscript{[14]} and it appears to be common among patients with inhalants induced psychosis That is why, they may be at risk for appearance of extrapyramidal side effects with use of antipsychotics.\textsuperscript{[15,16]} This can be the reason of appearance of extrapyramidal side effects in this patient also. There are alternative therapies proposed for the treatment of Inhalants induced psychosis like carbamazepine, because of its calcium antagonistic properties leading to reduction of neuronal hyper excitability and dopaminergic tone\textsuperscript{[12]} and lamotrigine, that modulates release of the excitatory amino acids, block 5HT3 receptors and inhibits dopamine uptake.\textsuperscript{[17]}

**CONCLUSION**

The widespread effect on brain of these volatile solvents and the prevalence of use of these substances among youth is alarming and more studies are required to elicit the exact mechanism, so that effective treatment strategies can be planned.
REFERENCES