



# A CASE REPORT ON ATROPINE INDUCED PSYCHOSIS IN OP COMPOUND POISONING PATIENT

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## ABSTRACT:

Atropine is an anticholinergic agent which is used in the treatment of amblyopia, cardiac arrest, cycloplegic refraction, mydriasis induction, and organophosphate poisoning, pre-medication for anesthetic procedure and to treat toxic effects from eating mushrooms. Atropine is a drug which is used as an antidote to treat certain types of poisoning, used to help reduce saliva, mucus, or other secretions in your airway during a surgery. Atropine is also used to treat spasms in the stomach, intestines, bladder, or other organs. Organophosphates are chemicals that feature in agriculture products such as herbicides, pesticides, insecticides. Consumption of organophosphates can cause nerve damage and disturb hormone production in humans and also causes nerve damage. Organophosphate poisoning includes three stages based on toxicity length that is Acute may last from minutes to 24hrs, subacute effects appear after 24hrs and may last for 2 weeks, Chronic effect may be seen from weeks to years. A 40yr male patient was admitted with a history of vomitings 5 episodes and sweating, seizures at hospital. He is an alcoholic consumer 4 times/week. Atropine works by blocking the neurotransmitter (acetylcholine) actions on the structures innervated by post ganglionic nerves and on smooth muscles.

**KEYWORDS** Amblyopia, Cycloplegic refraction, Atropine, Psychosis.

## INTRODUCTION:

Psychosis is a symptom, not an illness. It can be triggered by a mental illness, a physical injury or illness, substance abuse, or extreme stress or trauma. It is a condition that affects the way that brain processes information. According to statistical analysis, on an average 58.2% out of 1000 people suffer from variations of mental health disorders in India. Atropine induces psychosis by blocking the Acetyl choline situated on the structures innervated by post ganglionic nerves and on smooth muscles. It causes serious side effects of delirium, hallucinations, restlessness and excitement. The exact causes of psychosis are not well-understood but might involve: **Genetic factors:** Research shows that schizophrenia and bipolar disorder may share a common genetic cause **Trusted Source.** **Hormones:** Some people experience postpartum psychosis after giving birth. Due to this, and the fact that the early signs of psychosis often occur first in adolescents, some experts **Trusted Source** have suggested that hormonal factors may play a role in those with a genetic susceptibility. **Brain changes:** Tests have found differences in brain chemicals — specifically, the activity of the neurotransmitter dopamine — in people who experience psychosis. Psychosis can be triggered by the use of drugs including cannabis, amphetamines like speed and ice, LSD, magic mushrooms, ketamines and cocaine. Some medical conditions like Head injuries, HIV and AIDS, Syphilis, Stroke, Postnatal depression, Alzheimers disease, Parkinson's disease. Ecstasy, Insomnia may also trigger psychosis. It causes to lose touch with reality. The Patient might see, hear, or believe things that aren't real. Psychosis doesn't suddenly start. It usually follows this pattern that starts with gradual changes in the way you think about and understand the world. You or your family members may notice A drop in grades or job performance Trouble thinking clearly or concentrating, Suspiciousness or unease around others, Lack of self-care or hygiene, Spending more time alone than usual, Stronger emotions than situations call for, No emotions at all. Psychosis may have three stages which includes prodromal phase, acute phase, recovery phase. The first phase is referred to as the prodrome (or prodromal) phase. During this period the person starts to experience changes in themselves, but

have not yet started experiencing clear-cut psychotic symptoms. Types of changes in feelings, thoughts, perceptions and behaviours include difficulty screening out distracting information and sensations, difficulty focusing or understanding what they are hearing, changes in perceptual experiences – visual experiences may become brighter or sounds loud feeling overloaded finding it harder to keep track of what they are thinking and what others are saying, feeling disconnected desire or need to be alone sleep disturbances depressed mood irritability suspiciousness unexplained difficulty. Prodrome symptoms vary from person to person and some people may not experience any of the changes. This phase can last from several months to a year or more. The second phase is the Acute Phase when characteristic psychotic symptoms – such as hallucinations, delusions and very odd or disorganized speech or behaviours – emerge and are most noticeable. The experiences are often very distressing for the person. It is during this phase when appropriate treatment for psychosis needs to be started as soon as possible. The third phase is Recovery within a few weeks or months of starting treatment, most people begin to recover. Many of the symptoms get less intense or disappear, and people are generally better able to cope with daily life. Some of the symptoms that emerged in the Acute Phase may linger in the Recovery Phase, but with appropriate treatments, the vast majority of people successfully recover from their first episode of psychosis. To diagnose a psychotic disorder, doctors will take a medical and psychiatric history and possibly perform a brief physical exam. The person may get blood tests and sometimes brain imaging (such as MRI scans) to rule out physical illness or drug use like cocaine or LSD. **Antipsychotic drugs** [Trusted Source](#) are the main form of treatment for people with a psychotic illness. Antipsychotics can reduce psychosis symptoms in people with psychiatric disorders, such as schizophrenia. However, they do not treat or cure the underlying condition. Medications include haloperidol (Haldol) chlorpromazine (Thorazine) clozapine (Clozaril) A person can only use these drugs under supervision from a doctor, as they can have adverse effects. Counseling, along with medicines, can also help manage psychosis. **Cognitive behavioral therapy (CBT)** can help you recognize when you have psychotic episodes. It also helps you figure out whether what you see and hear is real or imagined. This kind of therapy also stresses the importance of antipsychotic medications and sticking with your treatment. **Supportive psychotherapy** helps you learn to live with and manage psychosis. It also teaches healthy ways of thinking. **Cognitive enhancement therapy (CET)** uses computer exercises and group work to help you think and understand better. **Family psychoeducation and support** involves your loved ones. It helps you bond and improves the way you solve problems together. **Coordinated specialty care (CSC)** creates a team approach in treating psychosis when it's first diagnosed. CSC combines medication and psychotherapy with social services and work and education support. Organophosphate poisoning is poisoning due to organophosphates (OPs). Organophosphates are used as insecticides, medications, and nerve agents. Symptoms include increased saliva and tear production, diarrhoea, vomiting, small pupils, sweating, muscle tremors, and confusion. Metabolic disorders, such as hyperglycemia (high blood sugar) and glycosuria (excess sugar in urine) diabetic ketoacidosis, in which your blood produces excess blood acids pancreatitis, pancreas Cancer, neurological problems, such as muscle weakness and twitching, poor concentration, poor memory, and post-traumatic stress disorder, fertility problems, paralysis. The mainstays of medical therapy in organophosphate (OP) poisoning include atropine, pralidoxime (2-PAM), and benzodiazepines (eg, diazepam). Initial management must focus on adequate use of atropine. Atropine is an anticholinergic, antispasmodic agent which is used as an antidote to treat certain types of poisoning (Carbamate poisoning, OP poisoning). Atropine was approved in 2014 by FDA. Injection Atropine-1mg-2mg every min when reducing the symptoms of excess saliva production in order to achieve adequate atropinization quickly.

### CASE REPORT:

A 40yr male patient admitted with chief complaints of salivation since morning and admitted in emergency department. Patient was alleged with compound such as 50% Ethion (OP compound), unknown amount mixed with alcohol during agriculture farming. Patient was admitted in government hospital and gastric lavage was done. At the time of admission the patient is in unconscious state. History of vomitings 4-5 episodes and sweating was observed and patient is an alcoholic consumer 4 times/week. Not a known case of type 2 diabetes mellitus, Hypertension, Coronary Artery Disease, chronic kidney disease and pulmonary Hypertension. Vitals are pulse rate 138BPM, B.P. was found to be 80/40mm/hg, Spo2 with mechanical ventilation 100% and without mechanical ventilation it was found to be 95%. Systemic Examination of C.V.S -s1,s2 present, Heart sounds are normal, R.S.-B/L Vestibular breath sounds present, B/L crepts are present, no wheezing was observed, C.N.S - B/L Pupil pinpoint not reacting to light. By physical examination his glassgow coma scale score was found to be 3/15. Score 3 represents totally unresponsive. At the time of admission patient was immediately treated with inj. Midazolam-2cc I.V. stat dose, I.V. fluids-2units of DNS, 2 units of NS, 1 unit of RL 100ml/hr, Inj. Atropine -2cc I.V. was given for every 30mins, Inj. Noradrenaline-2Amp mixed with NS at 8-16drops/min titrated according to B.P., Inj. PAM -1g in 100ml/NS three times/day, Inj. Cefepazone+Sulbactam-1.5gm twice a day, Inj. Pantop-40mg once a day, Inj. Emeset-2cc I.V. three times a day, Inj. Haloperidol-2cc I.M. /SOS. On Day2 we observed some behavioural changes like irritability and patient became non cooperative. At that time he was diagnosed to be atropine induced psychosis and got treated with

Inj.Haloperidol-2cc/SOS.On Day5 patient complaints about cough with sputum and treated with syp.Ambroxol-10ml/TID,Syp.potklor-30ml/PO/thrice a day.On Day7 Patient recovered with cough ,and his electrolytes Potassium has attained to normal level so,Syp.Potklor was stopped.

#### **DISCUSSION:**

In organophosphorus poisoned patient though atropine is used as an antidote to counteract the OP action yet larger doses of atropine given for a prolonged time causes psychosis where patients show signs such as muscle twitching, mentally disorganized behavior, and flushed skin. Respiratory depression is one of the severe conditions leading to fatality. Mechanical ventilation with oxygen is the foremost criterion in treatment to prevent respiratory depression.Physostigmine drug can also use as an antidote in OP poisoning drug which was not in stock during the treatment. However, physostigmine causes convulsions, epigastric pain, and salivation reported in several cases.Toxic reaction to atropine results from its anticholinergic action and includes a variety of peripheral and central manifestations. This reaction is related to the considerable interpersonal variation in susceptibility to atropine (idiosyncrasy), so that toxic effects may occur at the usual therapeutic doses.

In Our Case,Complaints of salivation,vomtings,Non-cooperation,irritability and patient became totally unresponsive.Antipsychotics and antidepressants can be used as treatment for atropine induced psychosis.

#### **CONCLUSION:**

Atropine is used in the treatment of OP Poisoning, Emergency care should be there especially with IV administration and early withdrawal of the offending drug is crucial to avoid further complications.

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