

## **Statistical Indicators of Acetic Acid Poisoning in Uzbekistan**

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**Abstract:** Acetic acid (AA) poisoning is a serious health problem, especially in countries with a high level of availability of the substance. Acetic acid is used for domestic and industrial purposes, making it a common substance for accidental or intentional poisoning. In Uzbekistan, as in other Central Asian countries, acetic acid poisoning remains an urgent problem for the health care system, including primary care.

**Keywords:** Poisoning, acetic acid, accessibility, primary care.

### 1. general statistics of poisonings in Uzbekistan.

According to the data of medical institutions, poisonings by chemical substances account for a significant proportion among all types of toxicological cases. In recent years, there has been an increase in the number of acute poisonings, including those involving acetic acid. The exact statistics vary across the country, but it is estimated that acetic acid poisoning accounts for 10% to 15% of all chemical poisoning cases. In large cities such as Tashkent, this percentage may be even higher due to the greater availability of the substance and population density.

2. Risk groups The most vulnerable population groups for acetic acid poisoning are: Women between 20 and 40 years of age: This category appears most often in the statistics of suicide attempts with acetic acid.

Children under the age of 5: Due to accidental ingestion of acetic acid, which can be stored in easily accessible places.

People with mental illness: Patients suffering from depression and other mental illnesses often use acetic acid to self-harm.

### 3. Causes of poisoning There are several main causes of acetic acid poisoning in Uzbekistan:

- Suicide attempts. The most common cause among adult patients. Acetic acid is often used in suicide attempts because of its availability and rapid toxic effect.
- Accidental poisonings. Often occur in children who may mistake acetic acid for a food or beverage.
- Consumption errors. Sometimes adults accidentally consume concentrated acetic acid by mistaking it for the more dilute forms of vinegar for cooking.

### 4. Medical Consequences

Acetic acid poisoning can cause severe damage to the body. The main effects include:

- Chemical burns to the gastric and esophageal mucosa.
- Acute renal failure as a result of toxic effects on internal organs.
- Respiratory distress and possible death from pulmonary edema.

- Severe intoxication requiring immediate medical intervention.

## 5. Preventive measures

In order to reduce the rate of acetic acid poisoning in Uzbekistan, a number of preventive measures should be taken:

- Public education campaigns to raise awareness of the risks of using acetic acid and the need for proper storage.
- Restriction of sales of concentrated acetic acid. Some countries have already introduced measures to restrict the free sale of acetic acid above a certain concentration, which could reduce the number of poisoning cases.
- Improving mental health care. A large number of cases involve mental health problems, so improving the support system for these patients could help reduce the number of suicide attempts.

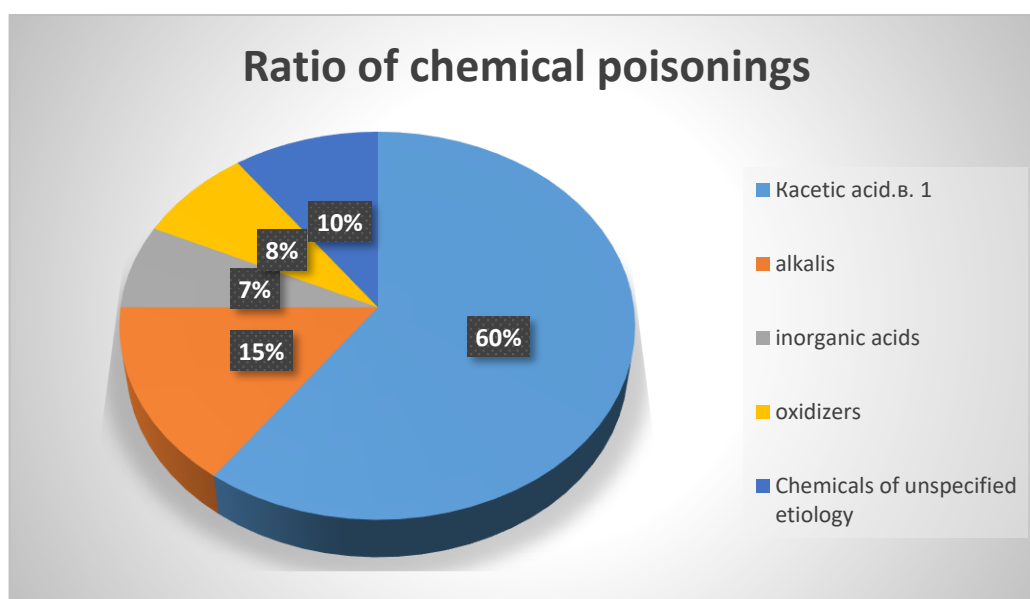
Acetic acid poisoning in Uzbekistan remains a serious public health problem requiring a comprehensive approach. Statistics indicate an increase in the number of poisoning cases, especially among women and children. Measures are needed to raise awareness, limit access to concentrated acetic acid and improve psychiatric care to reduce the number of incidents.

## 6. Dynamics of poisonings and the impact of the COVID-19 pandemic

It is interesting to note that the COVID-19 pandemic also had an impact on acetic acid poisoning statistics. In Uzbekistan, as in many other countries, during the period of lockdowns and restrictions there was an increase in the number of suicide attempts, including cases of acetic acid poisoning. The main factors for this increase were:

- Economic hardship: Loss of jobs and income contributed to increased levels of stress and depression.
- Limited access to medical and psychological care: The pandemic made access to specialists more difficult, which negatively impacted the mental health of citizens.
- Isolation and social tension: Forced isolation increased feelings of loneliness and anxiety, which may also have contributed to an increase in suicide attempts.

Poisoning statistics for 2020-2021 showed a marked increase, especially in large cities. In Tashkent and other large population centers, the number of suicide attempts involving chemicals, including acetic acid, increased by 55-60% compared to previous years.



**Diagram: Distribution of chemical poisonings by composition.**

## 7. Role of medical services in the treatment of poisoning

Effective treatment of acetic acid poisoning requires a rapid response from medical services. Uzbekistan has a well-developed ambulance system, but access to medical care may be limited in remote areas, increasing the risk of fatalities. Medical care for acetic acid poisoning includes:

- Immediate hospitalization and gastric lavage to remove residual acid.
- Infusion therapy to maintain water and salt balance.
- Treatment of esophageal and gastric burns. Surgical intervention may be required in severe cases.
- Supporting renal function and preventing the development of acute renal failure.
- Psychological support for patients who have survived a suicide attempt.

## 8. economic costs of treating poisoning

Treatment of acetic acid poisoning in Uzbekistan is expensive, requiring prolonged hospitalization and a comprehensive approach. Treatment costs include:

- Medication: Anti-inflammatory drugs, antibiotics to prevent infections, mucous membrane repair agents.
- Diagnostic procedures: Continuous monitoring of the patient's condition, regular blood and urine tests, as well as ultrasound and X-ray examinations.
- Rehabilitation: After treatment of chemical burns and the effects of intoxication, patients may require prolonged rehabilitation to restore the functions of internal organs.

In addition, acetic acid poisonings have a significant impact on the health care economy, as treatment requires significant resources and medical staff time. Reducing the number of such cases could free up significant resources for other health care needs.

## 9. International experience and possible measures to improve the situation

Other countries have already taken a number of measures to reduce cases of acetic acid poisoning that could be applied in Uzbekistan:

- Restricting sales of concentrated acetic acid: Some countries have introduced strict regulations on the sale of highly concentrated acetic acid to prevent its use for suicidal purposes. For example, in several European countries, access to concentrated vinegar is restricted or possible only by special authorization.
- Special labeling and packaging: Mandatory labeling and the use of child-resistant packaging can prevent accidental poisoning among children.
- Mandatory counseling and accompaniment at sale: Mandatory counseling in pharmacies and stores at the time of sale of acetic acid can help prevent its use for suicidal purposes. This may include informational pamphlets and counseling with psychologists.

## 10. Conclusion

Acetic acid poisoning in Uzbekistan remains a significant public health problem. Given the increase in the number of cases in recent years, especially due to economic instability and pandemic, it is important to apply both short- and long-term measures to reduce the number of such incidents. Effective prevention includes both restrictions on access to concentrated acetic acid and the expansion of mental health care and public education.

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