Abstract

Iodine is a crucial trace element required for the formation of thyroid hormones. Iodine-induced toxicity, o en known as iodine poisoning, can occur if high iodine intake . Large doses of iodine-containing compounds, such as iodine supplements, iodine-rich meals, or iodine-containing disinfectants, can cause acute iodine poisoning. Abdominal pain, nausea, vomiting, diarrhea, fever, burning in the throat and mouth, metallic taste in mouth, and dehydration are some symptoms of acute iodine poisoning.

Long-term iodine overconsumption can also result in chronic iodine toxicity, which can cause thyroid malfunction and other health issues.It is essential to consume iodine in appropriate amounts, as both iodine de ciency and iodine excess can negatively impact one's health [1]. For people, the recommended iodine consumption is between 90 to 290 micrograms per day, depending on various factors like age, gender, and health status. It is best to consult a professional to determine the appropriate intake of iodine.

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Iodine toxicity occurs when there is an excessive intake of iodine, which can lead to harmful e ects on the thyroid gland and other organs. Here are some common causes and risk factors of iodine toxicity:

: Iodine toxicity risk is increased by high iodine supplement doses. Sometimes supplements could have thousands of times higher iodine levels than advised.

: Some drugs, such as amiodarone, can have high iodine concentrations and cause iodine toxicity. Amiodarone can cause transient alterations in thyroid function tests, as well as overt hypothyroidism or hyperthyroidism.

C : Iodine-containing contrast dyes used in medical imaging examinations like CT scans and X-rays raise the risk of iodine toxicity.

: Eating an iodine-rich diet, such as a lot of seaweed or shell sh, can raise iodine poisoning chances.

: Iodine toxicity risk can be increased by speci c genetic mutations. For example, mutations in the N.I.S. gene can lead to an od gland .et

Iodine-induced poisoning can be di cult to diagnose because the symptoms might be vague and change depending on how severe the illness is. Iodine-induced toxicity can, however, be diagnosed with the aid of laboratory tests. e following are some frequent laboratory tests for iodine-induced toxicity: Iodine levels in the urine can be measured as a valuable test for determining whether someone was exposed to too much iodine. A person who has a high urine iodine level has likely absorbed more iodine than their body can utilize, which could result in iodine-induced toxicity.

Levels of serum hormones that regulate the thyroid, such as T3 and T4, can be used to diagnose thyroid dysfunction brought on by iodine-induced poisoning. Reduced levels of the hormone thyroid may be present in chronic iodine toxicity instances because of thyroid gland

how well the body functions [3]. Analyzing these electrolyte levels in the blood can aid in the diagnosis and treatment of iodine-induced toxicity. Measurement of tests for liver function, such as alanine aminotransferase, or ALT and aminotransferase from aspartate (AST), can assist in diagnosing liver damage. Iodine-induced poisoning can also harm the liver.

Imaging tests: CT or ultrasound scans can evaluate the thyroid gland's or other a ected organs' damage in serious instances of iodine-induced toxicity. It is signi cant to note that iodine-induced toxicity may not always be diagnosed by laboratory testing alone. Instead, a full medical evaluation is required to identify the underlying source of the symptoms.

e severity of the problem and the symptoms that the a ected person is experiencing determine the best course of treatment for iodine-induced toxicity. Here are some typical medical options:

Iodine consumption should be stopped as the rst phase in treating iodine-induced toxicity. Avoiding iodine-rich foods, drugs, and supplements should do the work.

: In order to treat symptoms of iodine-induced toxicity, supportive care can be used. is involves giving intravenous uids, replacing electrolytes, and treating nausea and vomiting with medication.

: In cases where thyroid dysfunction has occurred by poisoning, thyroid hormone levels may need to be regulated with medication. is can involve taking medicine to either increase or decrease the synthesis of thyroid hormones.

: To control the symptoms and keep an eye on the patient's health in extreme cases of iodine-induced poisoning, hospitalization may be required. Close observation of health indicators, intravenous uid administration, and electrolyte replacement may be part of this.

: To eliminate extra iodine from the bloodstream in rare circumstances where iodine-induced toxicity has resulted in damage to the kidneys or failure, dialysis may be required.

: To prevent the recurrence of symptoms for individuals with chronic iodine-induced toxicity, long-term care may be necessary. is could involve taking medicine to treat thyroid dysfunction, avoiding iodine-rich meals and supplements and routinely checking thyroid hormone levels [4].

Iodine-induced toxicity can be prevented and treated by limiting iodine consumption and treating any symptoms that may develop. e following are some management and preventative tactics:

e simplest strategy for avoiding iron-induced poisoning is to avoid consuming excessive amounts of iodine. To do this, restrict your consumption of iodine-rich foods like seaweed, iodized sea salt, and shell sh, and avoid supplements with high iodine content.

Watch your iodine intake if pregnant: Too much iodine can harm the growing foetus. erefore, pregnant women must be extra cautious about their intake. Consult your healthcare professional about your iodine consumption if you are pregnant or intend to become pregnant. People who take supplements or drugs should carefully study the labels to determine the amount of iodine included therein. Some drugs, such as amiodarone can have high iodine concentrations, which raises the possibility of iodine-induced toxicity [5].

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Chronic iodine toxicity is the phrase used to describe the thyroid gland's potential harm from long-term exposure to high iodine levels. e gland that houses the thyroid is in charge of making the hormones that control growth, development, and metabolism. e thyroid gland may be harmed in the following ways by long-term iodine toxicity. Iodine-induced hyperthyroidism accompanied by hypothyroidism is a syndrome that can result from persistent iodine toxicity in some situations.

: Acute iodine toxicity can potentially enlarge the thyroid gland and result in goitre. A widespread or nodular goitre may manifest as symptoms including coughing, shortness of breath, and di culty swallowing. Chronic iodine poisoning may lead to autoimmune thyroiditis, a disorder in which the immune system attacks the thyroid gland. is may result in in ammation, thyroid cell death, and reduced thyroid hormone production. Despite its rarity, persistent iodine poisoning has been linked to a higher chance of developing thyroid cancer. e process is unclear, although it might be connected to how much iodine causes thyroid cells to grow and proliferate. Infants with impaired thyroid function: Chronic iodine poisoning in pregnant women can cause infants with impaired thyroid function. Congenital hypothyroidism can result from excess iodine exposure during pregnancy, disrupting foetal thyroid development.

Most of the world's population does not typically experience chronic iodine toxicity, especially in a uent nations where salt is enriched with iodine to avoid iodine de ciency. However, in regions where iodine-rich products such as supplements are eaten in excess, chronic iodine poisoning can happen. It is possible to treat chronic iodine toxicity by stopping iodine intake, taking medicine to treat thyroid dysfunction, and closely monitoring thyroid function [6].

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Acute iodine toxicity is the term used to describe the adverse e ects that unexpected exposure to high quantities of iodine can have on the body's numerous organ systems. Acute iodine toxicity may result in the following e ects on other organ systems. In ammation and irritation of the gastrointestinal tract's lining can result from acute iodine toxicity, which can produce symptoms like nausea, vomiting, stomach discomfort, and diarrhea .

C : Severe cases of acute iodine toxicity may result in cardiac arrhythmias, palpitations, and a rise in heartbeat and blood pressure.

: Iodine toxicity that occurs suddenly can harm the kidneys, resulting in diminished renal function and even kidney failure.

: Acute Iodine toxicity can have an impact on the neurological system and result in symptoms like confusion, disorientation, seizures, including coma. It is crucial to remember that severe iodine toxicity is uncommon and typically only happens when a person accidentally consumes high iodine concentrations, such as when they accidentally poison themselves or are exposed to salt-containing contrast substances utilized for medical imaging. When acute iodine poisoning is severe, hospitalization may be required along with medical treatment, such as giving uids and drugs to treat symptoms.

Iodine is a necessary ingredient for the creation of thyroid hormones that are crucial for preserving healthy metabolism, growth, and development. A lack of iodine is a widespread nutritional issue, particularly in underdeveloped nations, and it can cause various health issues, including goiter, hypothyroidism, or mental impairment. Iodine shortage is frequently prevented and treated by taking iodine supplements, such as salt with iodine or dietary supplements. However, consuming too much iodine can also be harmful to yourism, or2,s. Holcre0.33ry ss 0 e8so ionbsi 1also bien