PROCEDURE

Chelation therapy

Chelation therapy uses medicines that bind certain metals so your body can remove them.

PURPOSE
Remove specific toxic metals or excess iron or copper

PROCEDURE TYPE
Therapeutic; intravenous, injected, or oral chelating medicine

WHERE IT IS DONE
Outpatient clinic, hospital, or home with prescribed oral treatment

ANAESTHESIA
None

HOW LONG IT TAKES
30 minutes to several hours per infusion

PREPARATION
Medication review and blood tests; fasting usually unnecessary

RECOVERY
Usually same day; driving allowed unless your team advises otherwise

MAIN RISKS
Kidney injury, mineral imbalances, liver injury, allergic reactions

RESULTS
Blood and organ tests reviewed over days to weeks

Overview

Chelation therapy uses a medicine called a chelating agent. It attaches to a particular metal in your blood or tissues so your body can remove it, usually through urine or stool.

Chelators are not interchangeable. Each targets certain metals and has specific risks. Treatment may be given through a vein, injected into a muscle or under the skin, or taken by mouth. You may need one course or repeated treatment over months or years.

Chelation is an established treatment for selected metal poisonings and conditions that cause iron or copper buildup. It is not a general "detox" treatment. It is also not an established treatment for autism, and routine use for cardiovascular disease is not recommended. Unapproved chelation products can cause serious harm.

Why the procedure is performed

Your healthcare team may recommend chelation when tests show a harmful level of a specific metal or when your body cannot regulate normal metal levels.

Reasons include:

The decision depends on your symptoms, exposure type and timing, age, kidney and liver function, and other conditions-not one test alone.

A "challenge test," in which a chelator is given before urine collection, is not a reliable way to diagnose poisoning. It can raise urine metal levels even when treatment is unnecessary.

- Significant lead, arsenic, mercury, or other metal poisoning
- Iron overload from repeated blood transfusions
- Inherited iron overload when blood removal is unsuitable
- Wilson disease, which causes copper to accumulate
- Severe poisoning from swallowed iron tablets

Who should and should not have it

Chelation may be suitable when you have a confirmed condition for which a particular chelator has a proven role. An experienced clinician, such as a medical toxicologist, poison-centre specialist, liver specialist, or blood specialist, may help choose it.

It is usually inappropriate for suspected exposure based only on nonspecific symptoms, hair testing, or an unvalidated urine challenge.

Treatment may need to be avoided, delayed, or adjusted if you have:

Risks vary by medicine. The exact product is critical: disodium EDTA and calcium disodium EDTA are different. Using the wrong form can cause dangerously low calcium and death.

- Kidney or liver disease
- Dehydration or very low urine output
- Low calcium or another mineral imbalance
- Low blood cell counts
- A previous serious reaction to the medicine
- Pregnancy or breastfeeding

- An acute illness affecting treatment safety

How to prepare

Follow your treating facility's instructions, as they take priority over general guidance.

Tell your team about every prescription medicine, over-the-counter product, vitamin, mineral, and supplement you use. Some can affect your kidneys, liver, blood cells, or mineral levels.

Before treatment, tests may check:

Fasting is usually unnecessary, but oral chelators may have specific food instructions. Ask whether to arrange transport. Sedation is uncommon, but severe poisoning, side effects, or other medicines may make driving unsafe.

- The target metal level
- Kidney and liver function
- Blood cell counts
- Calcium and other minerals
- Hydration and urine output

What happens during the procedure

For intravenous treatment, a nurse places a small plastic tube into a vein and gives the medicine over a set period, from less than an hour to several hours. Staff may monitor your pulse, blood pressure, symptoms, IV site, and blood or urine results.

Some chelators are injected into a muscle or slowly under the skin. These injections may be uncomfortable and require multiple doses.

Oral treatment is taken at home on a prescribed schedule, with regular monitoring. Do not change the dose or combine chelation products without medical guidance.

Anaesthesia and sedation are not normally required. Serious acute poisoning may require hospital treatment and close monitoring.

Recovery and what to expect afterward

Pain: The IV site may be tender or bruised, and injections can cause soreness. Severe or

increasing pain is not expected.

Eating: You can usually eat normally. Your team may encourage fluids, but extra fluid can be unsafe with some kidney or heart conditions.

Activity: Normal activity is often possible the same day. Rest if you feel tired, dizzy, nauseated, or unwell.

Driving: Do not drive if you feel unwell or your team advises against it.

Work: Many people return the same day or the next. Acute poisoning, long infusions, or side effects may require more time away.

Risks and possible complications

Risks vary by chelator and may increase with prolonged treatment, dehydration, high exposure, or reduced kidney function.

Possible complications include:

Chelators may also remove useful minerals. Regular blood tests can identify problems early.

- Kidney injury or reduced urine output
- Liver injury
- Low calcium or other mineral imbalances
- Nausea, vomiting, diarrhoea, or abdominal discomfort
- Low red cells, white cells, or platelets
- Rash, fever, or allergic reaction
- Injection-site pain, swelling, or infection
- Hearing or vision changes with certain medicines
- Worsening illness from an unsuitable chelator

Results and follow up

Follow-up tests may measure the target metal, kidney and liver function, minerals, and blood cell counts. Results are generally reviewed over days to weeks.

A falling blood level does not always mean all excess metal is gone because metals may move between blood, bones, and organs. Your team may assess trends across several tests.

You may need repeated treatment, a pause, or a different medicine. Transfusion-related iron

overload and Wilson disease often require long-term therapy and monitoring.

The exposure source must also be removed. Chelation cannot prevent continued exposure from work areas, household products, medicines, supplements, food, or water.

Alternatives

Alternatives depend on the metal and why it accumulated.

For limited exposure without evidence that chelation will help, removing the source and monitoring may be safer.

For iron overload, regular blood removal, called phlebotomy, can remove iron efficiently. It may be unsuitable if you have significant anaemia or depend on transfusions.

For Wilson disease, zinc may reduce copper absorption in selected situations. It works more slowly and is not a substitute for chelation at every stage.

Another chelator may offer a different route or side-effect profile, but may require more monitoring or carry different kidney, liver, blood, hearing, or vision risks.

Acute poisoning may require hospital observation and supportive care for dehydration, seizures, or breathing problems, whether or not chelation is used. Over-the-counter "detox" products are not safe substitutes for supervised treatment.

When to call your healthcare team

Contact your healthcare team promptly for persistent vomiting or diarrhoea, worsening injection-site redness, a new rash, unusual bruising, marked tiredness, yellow skin or eyes, or noticeably reduced urine.

Seek emergency care for:

Attend routine blood and urine tests even if you feel well.

- Trouble breathing or swelling of the face, lips, or throat
- Fainting, seizure, severe confusion, or difficulty waking
- Chest pain or a new irregular heartbeat
- Severe weakness, muscle spasms, or collapse
- Little or no urine with worsening illness

Common questions

Will I be asleep?

Usually not. Chelation normally requires no sedation or anaesthesia.

Can I drive home?

Often, yes. Do not drive if you feel dizzy, weak, confused, or unwell, or if your team advises arranging transport.

How painful is chelation therapy?

An IV causes a brief needle sting. Muscle or under-the-skin injections may be more uncomfortable. Report severe pain.

When will I know if it worked?

Your team will compare metal levels and organ-function tests over days or weeks. Several cycles may be needed.

How many treatments will I need?

Some acute exposures need one course. Chronic iron or copper overload may require long-term treatment guided by tests and side effects.

Can chelation remove every toxin from my body?

No. Chelators bind specific metals; they do not remove all chemicals or provide general detoxification.

Sources

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