

Presentation by **Niaya Solomon**



Ciguatera

Overview

- Ciguatera poisoning is most commonly caused by consuming tropical reef fish that contains ciguatoxin, a poisonous substance produced by small sea plants called dinoflagellates. These plants grow naturally on and around coral reefs and are eaten by herbivorous fish, which are then consumed by carnivorous fish (barracuda, amberjack, snapper, moray eel, sea urchins, snails, grouper, and more). This chain of consumption leads to ciguatoxin in certain types of fish and can cause harm to those who eat them.
- Ciguatera poisoning affects around 10,000 to 50,000 people annually
- Ciguatoxin, cannot be detected because it is colorless, odorless, and flavorless.
- Ciguatoxin cannot be frozen or cooked out of food.



Transmission

Ciguatera poisoning is transmitted when a carnivorous fish eats a herbivorous fish that feeds on dinoflagellates, a type of sea plant that produces the toxic ciguatoxin. This initial transmission is where the poisoning starts.

Once a person is infected, the toxin can be passed on to others, though this is rare. Sexual intercourse or breastfeeding can be potential ways of spreading ciguatoxin. If a male who has ingested the toxin has sex with a female, she may experience symptoms of ciguatera poisoning. Similarly, if a nursing mother has the toxin in her breast milk, the baby may also be affected.



Symptoms

- Symptoms usually appear within 30 hours after exposure. People commonly experience the onset of symptoms between hours 6 and 12
- Symptoms are classified into four groups:

1. **General Symptoms**

- Insomnia
- Discomfort
- Fatigue

2. **Cardiovascular Symptoms (not as common)**

- Bradycardia (slow heart rate)
- Heart block
- Hypotension (low blood pressure)

3. **Gastrointestinal Symptoms**

- Diarrhea
- Nausea
- Vomiting
- Abdominal pain



Symptoms



4. Neurologic and Neuropsychiatric Symptoms

- Paresthesia (tingling or prickling sensations)
- weakness/fatigue
- Pain in the teeth or feeling that teeth are loose
- A burning metallic taste in the mouth
- Generalized itching
- Sweating
- Hallucinations or difficulty concentrating
- Blurred vision
- A reversal in temperature (cold objects feel or taste warm)

Roughly 20% of the people affected by Ciguatera Poisoning experience long-term symptoms. Their symptoms can persist for months or years following their initial poisoning. Some chronic symptoms experienced include seizures, depression, anxiety, fatigue, gastrointestinal issues, and memory disturbances.

Diagnosis/ Treatment



Diagnosis

To determine the issue, it's crucial to have a conversation with the patient about their recent dietary habits as there is no other diagnosis available.

Treatment

- No direct treatment doctors just treat the symptoms presented
- To prevent a relapse avoid consuming the following after being exposed to Ciguatera, reef fish, fish sauces, shellfish, nuts/nut oils, caffeine, and alcoholic beverages for up to 6 months

Prevention

To reduce the risk of being exposed to Ciguatera Poison, it is best to avoid consuming certain parts of tropical reef fish. These include the visceral organs (such as lungs, heart, intestines, and gut), as well as eggs, heads, eyes, and bones, which tend to have higher concentrations of harmful substances.

To eliminate the risk of ingesting fish with the Ciguatoxin avoid eating tropical reef fish.



References

<https://www.who.int/publications/i/item/WHO-HEP-NFS-SSA-2022.1>

<https://rarediseases.org/rare-diseases/ciguatera-fish-poisoning/>

<https://wwwnc.cdc.gov/travel/page/fish-poisoning-ciguatera-scombroid>

<https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/CiguateraFishPoisoningFactSheet.pdf>

<https://wwwnc.cdc.gov/travel/yellowbook/2024/environmental-hazards-risks/food-poisoning-from-marine-toxin>