Ciguatera-Intoxication

Frühwirth Melanie, 0700011

Introduction: Ciguatera is an endemic fish poisoning and occurs mainly between 35° Northern and 35° Southern latitude. It is contracted by consumption contaminated fish that have accumulated lipid-soluble toxins, named ciguatoxins, produced by microalgae of the genus Gambierdiscus. It is established that differences exist between the toxin profiles from fish collected at different sites of the world and consequently, ciguatoxins are divided in toxins from the Pacific, the Caribbean and the Indian Ocean.

The expansion of the tourism industry in tropical and subtropical countries and the export of reef fish for human consumption have resulted in a wider distribution of outbreaks. It is estimated that 50,000 – 100,000 people per year suffer from ciguatera fish poisoning, with a mortality rate below 1%.

Materials and methods, experimental design, other methodological information: The aim of this bachelor thesis was to present the variety of symptoms based on studies and factual reports additionally, the current problems of diagnosis and treatment methods were illustrated.

Results and discussion: The symptoms of ciguatera include gastrointestinal, neurological and cardiovascular disturbances and can be quite diverse. Symptoms of intoxication appear dependent on a combination of the amount of toxin consumed, the suite of toxins present in the tainted fish and an individual’s susceptibility.

In the Caribbean, gastrointestinal symptoms and signs are more pronounced in the acute phase, followed by neurologic symptoms and appear within 2 to 12 hours after consumption contaminated fish. The symptoms dominate the early course of ciguatera, typically ending within 2 days.

In the Pacific and Indian Ocean regions, the neurological symptoms and signs are characteristic in the acute phase and develop from immediately up to several weeks after toxin ingestion. Recovery from neurologic symptoms is longer and less predictable than gastrointestinal and cardiovascular ones, ranging from 1 week to 6 months. Some patients develop a chronic illness and the persistence of symptoms for several years is not unusual.

Cardiovascular symptoms occur early and abate within 1 week. 10% to 15% of exposures result in hypotension and bradycardia, which are more frequent in persons ingesting larger fish.

Diagnosis is based on presenting symptoms and time course, dietary history of reef fish consumption, and the exclusion of other diagnoses that could account for symptoms. Ciguatera has some symptoms in common with other illness and so it often comes to fail diagnosis.

The treatment with intravenous infusion of hyperosmotic mannitol is considered as the most effective method to abate neurological symptoms. Furthermore, support of any depressed vital functions and supportive therapies for controlling fluid and electrolyte balance are of utmost importance.

Conclusion: Symptoms can vary greatly from person to person, starting from mild moderate course to severe cases of poisoning with persistent neurological symptoms, anything is possible. The
diagnosis of ciguatera is extremely difficult, because there are currently no reliable biomarkers that can be used to confirm diagnosis of ciguatera in clinical settings. Detection of ciguatoxin in clinical samples may be possible in the near future, but further trials are needed. Although the mechanism of the neuroprotective effect of this sugar alcohol is not fully understood, an intravenous infusion of hyperosmotic mannitol is the most effective method to abate neurological symptoms.

References:


MITCHELL G. Treatment of a Mild Chronic Case of Ciguatera Fish Poisoning with intravenous Mannitol, a Case Study. Health in Palau and Micronesia 2005; 12(1): 155-157