

Possible Fatal Ciguatera Fish Poisoning?

LEONARD A. MERMEL, DO

KEYWORDS: ciguatera; food poisoning; fish poisoning

Headlines streamed across the Internet in June stating, “Young Texas couple die from unidentified illness in Fiji.” According to news reports, these two individuals apparently developed nausea, vomiting and diarrhea, along with paresthesias of their extremities and/or weakness. Both eventually succumbed to their illness. Although the cause of death has not been established to date, there is a narrow differential diagnosis. Based on their apparent symptomatology and geographic location, they may have developed ciguatera fish poisoning.¹ This is a food-borne illness that develops after consuming reef fish containing ciguatoxins. These heat-stable toxins are from dinoflagellates that grow in association with algae on coral reefs. The toxin works its way up the food chain to fish such as snappers, groupers, and barracuda. Affected fish cannot be identified by altered odor or taste. The toxins activate the voltage-gated sodium channels in cell membranes, increasing sodium ion permeability which depolarizes cells. Within hours of eating affected fish, gastrointestinal, neurologic, and cardiac symptoms predominate, although rare, fatalities have been reported.²

Other seafood-related illnesses are in the differential diagnosis including Scombroid, shellfish poisonings, and pufferfish toxicity. Although the couple with possible ciguatera fish poisoning were in Fiji at the time, cases have occurred in the southern US and the Caribbean.³ The diagnosis is usually made based on a history of recently eating reef fish, and if possible, identifying the toxin in the fish that were

consumed. Treatment is mainly supportive, but includes IV mannitol for severe cases.^{4,5} Details for clinicians and patients have been published.⁵ For the unfortunate couple in Fiji, it is unclear if this diagnosis will be eventually proven or ruled out.

References

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Author

Leonard A. Mermel, DO, ScM, AM (Hon), FSHEA, FIDSA, FACP; Department of Medicine, Warren Alpert Medical School of Brown University, Division of Infectious Diseases, Rhode Island Hospital.

Correspondence

Dr. Leonard Mermel
Division of Infectious Diseases, Rhode Island Hospital
593 Eddy Street
Providence, RI 02903
401-444-2608, Fax 401-444-8154
lmermel@lifespan.org

Editors' Notes

1. Ciguatera fish poisoning is infrequently seen in RI, but there appears to be an increasing incidence in the US and Caribbean. Climate change may be responsible as sea surface temperature increases of 1°C is related to an increase in poison control calls for ciguatera fish poisoning. (Gingold DB, Strickland MJ, Hess JJ. Ciguatera Fish Poisoning and Climate Change: Analysis of National Poison Center Data in the United States, 2001–2011. *Environ Health Perspect.* 2014;122: 580 -586)

2. RIMJ reached out to the Centers for Disease Control and Prevention (CDC), prior to publication, to ascertain whether a cause of death for the Texan couple had been established. The media office reported on July 26 that “The Ministry of Health and Medical Services in Fiji

requested CDC assistance in the public health investigation of the deaths of an American couple who passed away while visiting Fiji in May. CDC has completed testing on samples received from Fiji. CDC results do not suggest that an infectious disease caused these deaths. CDC and a partner laboratory conducted additional tests and have not identified a non-infectious cause of death. CDC has shared results of its tests with the Tarrant County, Texas health department and other partners, and at this time has concluded its involvement in the public health investigation.

“While we at CDC sincerely hoped we would be able to provide an answer about what led to these deaths, it is common in our work with medical examiners around the country and around the world for deaths to remain unexplained.”