ORAL PRESENTATIONS

[ID-O#062] Mass Poisoning with Silver- cheeked Toadfish Lagocephalus sceleratus (Gmelin, 1789) containing Saxitoxin and Tetrodotoxin: A Case Series

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Background & Objective: Pufferfishes, including the Genus Lagocephalus sp. belong to the Family Tetraodontidae where ingestion would typically cause tetrodotoxin (TTX) poisoning. However in the Philippines, Caballes and Ingkagan (2023) reported a case of pufferfish poisoning that contains both TTX and saxitoxin (STX). There is a paucity of data on the presentation or prognosis of the co-occurrence of these toxins. This aims to discuss a case series of both TTX and STX poisoning from a household after accidental consumption of Lagocephalus sceleratus (Gmelin, 1789).

Case Report: This is a case series of seven members of a household who, after eating a fish prepared by one of them, manifested with headache, perioral numbness, and body weakness. Three members rapidly progressed to paralysis of the lower extremities and eventually respiratory depression which led their mortality. The rest suffered from mild symptoms of gastroenteritis and were managed with single dose activated charcoal and supportive hydration. They were eventually transferred to a bigger institution where observation was continued. The cooked fish specimen was sent to the Bureau of Fisheries and Aquatic Resources and was later identified as L. sceleratus. This tested positive using receptor binding assay for both tetrodotoxin (60.24µg TTX-eq/100g) and saxitoxin (160 µg STX- eq/100g).

Discussion: Tetrodotoxin is a heat-stable, water- soluble non-protein found in Family Tetraodontidae which causes inhibition of sodium channels and blockade of neuromuscular transmission3,6. Saxitoxin is another marine toxin that blocks the voltage-sensitive sodium channel and is found mostly in shellfish, making its disease known as paralytic shellfish poisoning6. Severity is dose dependent for both toxins3 and mortality could reach up to 50% for tetrodotoxin3,6. While diagnosis is clinical and management is mainly supportive with priority on securing the airway, the emergence of marine toxin co-occurrences raises concern for further investigation on their synergistic toxic effects. Typically, tetrodotoxin poisoning would last only for 48 hours, however prolonged effects may be attributed to saxitoxin poisoning. This case highlights the co-occurrence of marine toxins in pufferfish poisoning and the need for toxicovigilance to prevent morbidity and mortality from its consumption.