From platter to peril : Saxitoxin induced Paralytic shellfish poisoning due to mussel consumption

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Intro

Paralytic shellfish poisoning (PSP) occurs due to consumption of saxitoxin contaminated shellfish which can lead to progressive muscle weakness and respiratory arrest[1]. Here we present such a case of saxitoxin induced PSP due to mussel consumption.

Case Description

42-year-old Indonesian lady presented with generalised body weakness and numbness, with perioral numbness, breathing difficulty, abdominal discomfort and nausea. She had consumed more than 10 mussels 1 hour prior at a seafood feast. On examination, her respiratory rate was 20 breaths/min, saturating 99% under room air with bibasal crepitations. Her blood pressure was 150/90mmHg, Pulse: 78bpm. Power of both upper limbs was 3/5 while power of lower limbs was 1/5, with normal tone all 4 limbs. She had normal reflexes, no clonus and Babinski was negative. Her sensation was intact. Her ABG under room air- pH: 7.43, PO2:74, PCO2:35, HCO3:23.2, BE: 0.7. Patient was started on nasal prong oxygen 3L/min, pantoprazole and intravenous drips. Subsequently, she improved and was discharged in 3 days.

Discussion

Warm water in summer months favours proliferation of dinoflagellates[2] of the algae *Alexandrium* species which produce saxitoxin and colour water causing “red tides” . These are eaten by mussels, which concentrate saxitoxin in their flesh[1].

Saxitoxin causes neurotoxicity through blockade of sodium channels, preventing neural signal transmission [1]. It is fast acting with symptoms developing within 30 minutes of consumption and death within 4 hours[3]. Neurological symptoms such as paraesthesia of the face and mouth, rapidly progressive weakness, gastrointestinal symptoms and hypertension are commonly seen[1].

Most patients recover but some may need mechanical ventilation[1]. Intravenous fluids facilitate toxin excretion and prognosis is good if patients survived for 24 hours [3].

Saxitoxin levels can be measured from shellfish meat or patient’s urine or serum[1]. In North America, a cutoff of 80 μg saxitoxin equivalents per 100 g shellfish is set as safe for consumption [3].

Conclusion

PSP is preventable if a system is developed for regular monitoring of PSP toxin levels and this information is channelled properly from the authorities to public, especially target groups such as fishmongers during red tide seasons[3].

Keywords “paralytic shellfish poisoning,” “mussels,” “saxitoxin”

References

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