

Case Report

Star Fruit Intoxication in Chronic Kidney Disease: Our Experience

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Summary

We report a case, where a patient of chronic kidney disease developed hiccups and alteration of consciousness after consuming star fruit. Prompt recognition of his features lead to commencement of hemodialysis, and that saved his life.

Key Words: Star fruit, Uremia, Renal replacement therapy

Case Report

A 46-year-old man with diabetes, hypertension and chronic kidney disease (CKD) without need of dialysis therapy presented to the emergency department of a hospital with persistent hiccups and vomiting for 3 days and disorientation since the morning of the day of admission. On that day, he was drowsy (Glasgow Coma Scale E₄V₄M₅). His blood pressure was high (180/100 mmHg) with a heart rate 102beats/min and he was afebrile. His physical examination revealed no neck stiffness, normal tendon reflexes and bilateral withdrawal plantar response. Other system examination was unremarkable. His consciousness state was deteriorated to E₃V₂M₅ on GCS and he was shifted to ICU of another hospital for better management. At that time his pupil was constricted but reacting to light. His spo₂ was 100% on room air, Blood sugar 15 mmol/L without detectable urinary ketone bodies. His blood urea and creatinine was 35 and 4.6 mg/dl respectively. There was no major electrolyte disturbance. His total white cell count including platelet and haemoglobin was within normal limit. cardiac enzyme level, liver function test and blood ammonia level was also normal. Brain MRI revealed multiple T₁ hypo, T₂ and FLAIR hyperintense foci are seen in subcortical and periventricular white matter of both cerebral hemispheres (Fig 1), more remarkable at left. No restricted diffusion is noted in DW₁. A

small focal area of restricted diffusion is noted in left posterior parietal lobe which is mild hyperintense in T₂ and FLAIR image.

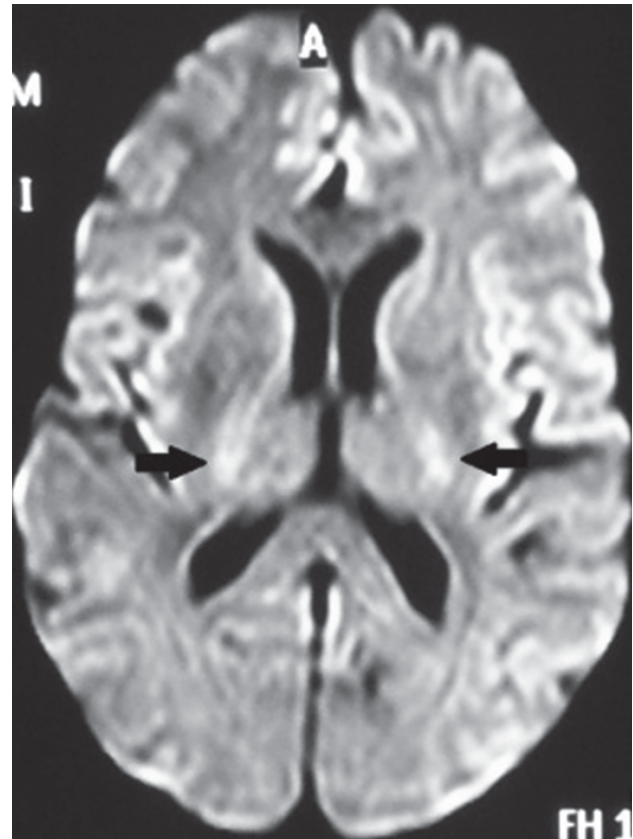


Fig 1: MRI brain FLAIR showing hyperintense foci in subcortical and periventricular (arrows) white matter of both cerebral hemispheres.

Reviewing his history, his spouse sated that he had ingested 17 star fruits 6 hours before his symptom started. On the first day in ICU he underwent for haemodialysis with the suspicion of star fruit intoxication and after two 4 hour session of dialysis he regained his consciousness and discharged smoothly without need of maintenance haemodialysis.

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Discussion

Star fruit, which is very popular in tropical countries, belongs to Oxalidaceae family.¹ Although the exact neurotoxin remains unknown, oxalate, which is abundant in this fruit, is a possible cause of neurotoxicity.²

The neurotoxic effect of star fruit ranges from mild to severe, include hiccups, vomiting, insomnia, psychomotor agitation, numbness, paraesthesia, mental confusion, coma, seizure, and hemodynamic instability resulting in mortality.^{2,3} The velocity of progression of symptom varies in different patient. Some manifest only with hiccups and others may develop seizure. These variations depend on individual biological response, the amount of toxin content in each fruit and the detoxification, excretion, or both, of this toxin from bloodstream and also on various star fruit subspecies. Some patient with mild intoxication may recover spontaneously. But others without proper treatment mild intoxication may become more severe.² This condition is uncommon in patient with normal renal function. Only two cases of oxalate nephropathy were reported in patient with normal renal function.^{3,4}

Initially it is observed that only haemodialysis improves this symptom by removing Unknown neurotoxin. Patient presenting with severe intoxication who are not treated, that are treated by peritoneal method, or by late haemodialysis, will die with most of them in status epilepticus.¹ In several studies and case reports, it is found that haemoperfusion is superior to haemodialysis in removing star fruit toxin.

Although chemical nature of neurotoxin largely unknown, it is believed that it has moderate volume of distribution and is not firmly bound to tissue. This neurotoxin can be redistributed in different body compartment after dialytic therapy, causing recurrence of symptom shortly after cessation of dialysis. These properties explain the superiority of haemoperfusion over haemodialysis and haemoperfusion also remove middle molecules from blood more efficiently should keep in mind about star fruit intoxication if patient of chronic kidney disease developed hiccups, unexplained change in consciousness or seizure after excluding other important causes. Because, this condition is fatal and patient may lose his valuable life.

References

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