



A CASE REPORT ON AVERRHOA BILIMBI INDUCED ACUTE OXALATE NEPHROPATHY

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ABSTRACT

Averrhoa bilimbi is used commonly in South India for various home preparations and as a remedy for hypercholesterolemia and hypertension. It belongs to Oxalidaceae family and has high oxalate content, which causes calcium oxalate crystals deposition in renal tubules, and results in acute oxalate nephropathy (AON) when consumed in large quantities. In some villages in the Thiruvananthapuram district of India, the fruit was used in folk medicine to control obesity and lead to need of further studies regarding its antihyperlipidemic effect. We present a case report describing an admission of a male patient after ingesting large quantity of *Averrhoa bilimbi* juice as a remedy for hypercholesterolemia, and was managed by drugs and haemodialysis. When used in high concentrations, the fruit can lead to acute renal failure (ARF) due to acute tubular necrosis, which results in intratubular oxalate crystal deposition. We conclude that it's not safe to consume high oxalate-containing fruits in large quantities.

Keywords: Averrhoa bilimbi, AON, ARF, haemodialysis, acute tubular necrosis, intratubular oxalate crystal deposition.

INTRODUCTION

Averrhoa bilimbi is a medicinal plant belonging to the family Oxalidaceae. It originated in the Southeast Asia. The fruits are greenish in color with a firm and juicy flesh which becomes soft on ripening. The fruit juice is sour and extremely acidic and contains high amount of oxalic acid [1].



FIGURE 1 - The bilimbi fruits

SCIENTIFIC CLASSIFICATION

- Kingdom: Plantae – Plants
- Subkingdom: Tracheobionta – Vascular plants
- Superdivision: Spermatophyta – Seed plants
- Division: Magnoliophyta – Flowering plants
- Class: Magnoliopsida – Dicotyledons
- Subclass: Rosidae
- Order: Geraniales
- Family: Oxalidaceae – Wood-Sorrel family
- Genus: Averrhoa Adans – averrhoa
- Species: *A. bilimbi* L. – bilimbi.

MEDICINAL USES

A.bilimbi is used in the traditional medicine for the treatment of a variety of ailments. The leaves are used as an antibacterial, antiscorbutic, astringent, postpartum protective medicine, in the treatment of fever, inflammation of the rectum, and diabetes. It is also used in the treatment of itches, boils, skin eruptions, bites of poisonous creatures, rheumatism, cough, cold, mumps, and syphilis [2,3]. Fruit juice is employed in the treatment of scurvy, bilious colic, whooping cough, hypertension,

obesity, hypercholesterolaemia and diabetes [4].

CASE PRESENTATION

A 63 year old male patient was admitted to the nephrology department of a tertiary care hospital. He came with complaints of fluid retention, A/C worsening of renal function after excessive consumption of Averrhoa bilimbi juice, cough. The Patient was having past medical history of COPD, OSA, CKD, T₂DM, DLP and he was on treatment with following medications: T. Acidose 500mg 1-1-1, T. Doxivent 400mg 1-0-1. The vital symptoms showed blood pressure (BP) 130/80 mmHg; Temperature 98°F; Pulse rate 78 beats/ minute and r.rate 22 breaths/min. His lab reports showed abnormalities in CBC/Na/K/creatinine/Uric acid/RBS/RFT. From RFT, creatinine level was found to be abnormal and hence patient was diagnosed with A.bilimbi induced AON. After medical investigation, the physician prescribed 2 weeks therapy to the patient with the following drugs: T. Defza (Deflazacort) 30mg OD, Inj. H. Actrapid (H.insulin) 20 units BD, T. Mucinac (N-acetyl cysteine) 600mg BD, T. Acidose (Sodium bicarbonate) 500mg TDS, T. Doxivent (Doxofylline) 400mg BD, Inj. Pantocid (Pantoprazole) 40mg OD, Inj. Emeset (Ondansetron) 20mg BD, Inj. Dytor (Torsemide) 10mg BD, T. Benadon (Pyridoxine) 40mg BD, T. Nexovas (cilinidipine) 20mg BD, T. Atorlip (Atorvastatin) 20mg HS, T. Ecospirin (Aspirin) 75mg OD, T. Trajenta (Linagliptin) 5mg HS, Inj. Cefolife (cefoperazone + sulbactam) 1.5gm BD, K Bind (Calcium polystyrene sulphonate powder) 15mg BD. The patient underwent haemodialysis for 4 days alternatively. As a result of therapy, symptoms got resolved and the patient

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was discharged with a review after one week with following lab results CBC/Na/K/Uric acid/URE/RBS/RFT.

DISCUSSION

This is a case report of A.bilimbi induced AON in elderly male patient who came with the worsening of RFT which was resolved after the proper treatment. In southern parts of india, A. bilimbi is used traditionally as a remedy for hypercholesterolemia and hypertension [5,6]. As a result of this, misconceptions arises and hence it is consumed in larger quantities than normal and leads to toxicity. The advised daily intake of oxalate in humans is ≤80mg. A.bilimbi contains oxalic acid with a range of 8.57-10.32mg/g [7]. So, if a person consumes A.bilimbi in larger quantities than advised can result in higher oxalate content and leads to abnormalities in RFT and finally causes AON.

CONCLUSION

Not all cases of excessive consumption of A.bilimbi leads to AON. Our report emphasizes on the fact of the need of good patient education by a qualified clinical pharmacist or medical professional in order to secure patient from such a critical health condition [8].

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Nil

CONFLICT OF INTEREST

No interest