ABSTRACT

We present a case of colchicine poisoning in a 24yr male who attempted suicide by ingestion of tuber extracts of Gloriosa superba, a climber plant commonly found in Wayanad district of Kerala. He initially had features of acute gastroenteritis followed by bone marrow suppression in the form of leukopenia and thrombocytopenia with bleeding manifestations. He also developed a transient bradycardia possibly due to the toxin(2). Patient was managed with IV fluids, PRP transfusions, filgrastim injections and supportive care with good recovery. He later developed severe hair fall due to anagen effluvium which was treated conservatively.

Key Words: Gloriosa superba, colchicine toxicity

INTRODUCTION

Gloriosa superba (Kalappai kilangu) is an annual perennial herb used in Ayurvedic medicines(1). It contains colchicine, superbine and gloriosine as its active principles(2). Medicinally it is used for gout, de worming, Behcets disease and familial periodic fever. Accidental, suicidal or homicidal poisoning is rarely encountered. Poisoning should be suspected in unexplained cases of gastroenteritis, bone marrow suppression, cardiac toxicity and hair loss. Death can occur due to hypovolemic shock, neutropenic sepsis, DIC, ARDS and multi organ dysfunction syndrome(3). G-CSF (Filgrastim) has come up as a adjuvant in the treatment of leukopenia associated with Gloriosa poisoning.
CASE REPORT

24yr male from Wayanad was admitted with history of suicidal ingestion of extract of the tubers of a local herb, Gloriosa superba, the active principle of which is Colchicine. This was followed by recurrent vomiting and loose stools along with diffuse abdominal pain for which he was treated from a local hospital with stomach wash and IV fluids. He was referred to our hospital because they detected a thrombocytopenia (25,000) in his routine hemogram. On examination he had bilateral subconjunctival hemorrhage and lip bleeds. Vitals were stable except for a low pulse rate of 64/min. Other system examinations were normal.

His blood investigations showed a hemogram of Hb 11.9g%, TC 2,400, Plt 10,000, S.ALP 314, S.CPK: 5,310(<170) and Trop I was negative. ECG showed a normal sinus rhythm with heart rate of 64/min and no ST-T changes.

He was treated with IV fluids, repeated PRP transfusions, empirical antibiotics and Filgrastim at a dose of 5mcg/kg/day s/c for 3 days. His counts improved, bleeding manifestations disappeared and heart rate in repeat ECG was 78/min. Patient later developed paralytic ileus due to hypokalemia which was treated with potassium supplements. By day 10 patient started to have severe hair fall which was due to anagen effluvium, well described in Colchicine poisoning.

DISCUSSION

Gloriosa superba otherwise called flame lily, fire lily is a common herb of South India. All parts of the plant contain colchicine but it is most concentrated in its tubers. The toxic dose is 60mg and is indistinguishable from colchicine toxicity(2). Since it has a large volume of distribution, toxicity cannot be treated with hemodialysis(4). As a mitotic inhibitor, colchicine’s toxic effects are first seen in the rapidly proliferating cells. It is metabolized by CYP3A4 or P-gp(4). Patients usually presents with ingestion of extracts of the plant, usually the tubers. It causes a numbness and tingling around mouth followed by severe gastroenterocolitis within next 2 to 6hrs characterized by nausea, vomiting, bloody diarrhea leading to dehydration, hypovolemic shock and acute renal failure(3). This is the commonest presentation.
Colchicine toxicity phases

<table>
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<tr>
<th>Phase I (0-24hrs)</th>
<th>Gastroenteritis Hypovolemic shockPeripheral leukocytosis</th>
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<tbody>
<tr>
<td>Phase II (2-7days)</td>
<td>Bone marrow suppression, Neutropenic Sepsis Rhabdomyolysis and cardiac toxicity MODS, DIC, ARDS</td>
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<tr>
<td>Phase III (7th day onwards)</td>
<td>Transient alopecia</td>
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The next phase is associated with involvement of bone marrow and muscle involvement. Later neutropenic sepsis, DIC, ARDS and MODS sets in and leads to mortality(5). Patient may also show bleeding manifestations in the form of subconjunctival and gum bleeds. Muscle involvement is characterized by rhabdomyolysis and cardiac involvement in the form of rhythm abnormalities(2).

If patients survives this phase, the recovery is characterized by rebound leukocytosis and alopecia due to anagen effluvium(8). Some present with sequelae in the form of sensory-motor neuropathy.

Although charcoal is potentially beneficial in preventing colchicine absorption and significant enterohepatic recirculation, it is of limited utility due to initial symptoms of nausea, vomiting and hemorrhagic gastritis(4). Colchicine has rapid and excellent absorption and unless charcoal is given prior to the onset of gastrointestinal toxicity, its use may worsen symptoms and be of limited benefit. Due to colchicine’s extensive volume of distribution and excellent tissue binding, hemodialysis and hemoperfusion do not effectively remove the drug and are not recommended unless used as a supportive measure for patients in renal failure.

Hypovolemic shock should be treated with IV fluids with concomitant correction of electrolytes. An empirical antibiotic should be initiated to prevent sepsis due to Leukopenia(5). Macrolides should be avoided as it can increase colchicine toxicity by preventing its hepatic metabolism. Patient may require multiple PRP transfusions to maintain platelets above 10,000 cell/mm³. Filgrastim (G-CSF) at a dose of 5 mcg/kg/day should be used to treat the leucopenia, usually given for 3 days with careful monitoring of blood counts. Cardiac monitoring should be done to watch for arrhythmias. Serum CPK levels should be checked to detect rhabdomyolysis with careful correlation with renal functions. Patient should take a diet with lots of fluids with strict input output chart. Grape juice should be avoided as it can interfere with colchicine metabolism(4).

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