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A Rare Phenomenon of Thrombocytopenia in Oleander Seed Poisoning

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Abstract
This is a case series of 5 patients who were admitted in a tertiary care centre, in South India, over the period of two years with oleander seed poisoning, who during the course in the hospital developed significant thrombocytopenia. In all the cases, thrombocytopenia occurred suddenly, within days of presentation and was rapidly deteriorating in nature. Hence enough monitoring is required from the part of treating physician to prevent severe bleeding manifestation. Even though thrombocytopenia is very rare, more studies have to be conducted in this matter.

Introduction

Oleander, *Nerium oleander*, is an ornamental plant, seen in almost all over India. Poisoning with common oleander (*Nerium oleander*) is more frequent than yellow oleander (*Thevetia peruviana).* It is well known that all parts of the Oleander plant are poisonous, which includes flower, leaf and stem. The kernel is almost seven times morepoisonous as compared to leaves, stems, flowers or fruit pulp. Poisonous ingredients include: Digitoxigenin, Neriin, Oleandrin, Oleondroside. Oleandrin and oleandrigenin are cardiac glycosides, and are toxic to human body. Oleander seed poisoning ranks the first place in plant poisoning in South India and second in the poisoning cases after organophosphorus poisoning [(1)].

Just like the digoxin, which has very narrow therapeutic index, mild variations in the serum toxin levels will significantly affect toxic manifestations. Since absorption appears to be slow and erratic, volume of distribution has not been studied, fatal dose calculation is variable. Starting with the gastrointestinal effects which includes nausea and vomiting, abdominal pain, diarrhoea. Cardiac reactions consist of irregularities in heart rate, The effect on the central nervous system include symptoms such as drowsiness, tremors, seizures.

Even though cases of thrombocytopenia is described in patient with acute digitoxin toxicity[(2)] and patients on routine digitoxin, mechanism and predictability of it is not explored much. Studies of thrombocytopenia in oleander seed poisoning is also not conducted much, except for the occasionally reported cases [(3)]

Case Reports

Among the cases of oleander seed poisoning admitted in our hospital in the year of 2019-2020, 5 cases of significant thrombocytopenia had been noted. Patients on antiplatelets, heparin for any reason, chronic liver disease, patients on any bone marrow suppressive drugs, patients with anemia and leukopenia and patients with splenomegaly were all excluded from the analysis.

All the 5 cases were brought to ER within 6 hrs of poison ingestion. Within the 10 min of presentation, all were given thorough stomach wash and activated charcoal as per the standard protocol for the oleander seed poisoning. All the patients were kept in intensive care unit, under continuous cardiac monitoring. Base line investigations were daily monitored.

Out of the five patients in whom significant thrombocytopenia noted, all of them had platelet count below one lakh/ µL. In all the patients, dip in platelet count noticed within first 5 days, and count returned to normal limits within first week itself. Two patients developed bleeding manifestations with platelet count less than 20000/µL, and they required platelet transfusion. None of the patients were given heparin, no pacemaker insertion done, Fab not given. Evaluation done for thrombocytopenia, serology tests for common viral infections implicated for thrombocytopenia done which were all negative in all patients. Examination of peripheral blood smears showed normal red blood cells and leucocytes, and thrombocytopenia.

Case No	Age	Sex	Time taken to reach hospital	Treatment initiated within	No of seeds taken	Pulse rate/ blood pressure	ECG (on admission)	ECG (after 24 hrs)
1.	23	m	2 hrs	10 min	7	56/min 132/86 mmHg	Sinus bradycardia	Type 1 second degree AV block,reverse tick sign
2.	26	f	3.5	10 min	2	48/min 112/70 mmHg	Sinus bradycardia	Sinus bradycardia
3.	34	f	1.5 hrs	10 min	4	74/min 100/68 mmHg	Sinus rhythm	Sinus bradycardia
4.	28	m	6 hrs	10 min	3	52/min 130/88 mmHg	Sinus rhythm	Sinus bradycardia
5.	47	f	2 hrs	10 min	6	48/min 110/74 mmHg	First degree AV block	First degree AV block

Case No	Platelet at the presentation	Lowest Platelet Count noted (per µL of blood)	Platelet count returned to values above 1.5 L on	Transfusion needed	Bleeding manifestations
1.	3.75 L	7000 (4^{th} day)	8th day	4 units	Yes, Gum bleed
2.	2.82 L	56000 (5^{th} day)	7^{th} day	nil	nil
3.	1.91 L	96000 (3^{rd} day)	5^{th} day	nil	nil
4.	2.46 L	13000 (3^{rd} day)	6^{th} day	4 units	Yes, ecchymosis at the injection site
5.	3.80 L	92000 (4^{th} day)	6^{th} day	nil	nil

Serial Platelet Counts (per µL of blood)

Case no	Platelet on day 1	Platelet on day 2	Platelet on day 3	Platelet on day 4	Platelet on day 5	Platelet on day 6	Platelet on day 7	Platelet on day 8	Platelet on day 9	Platelet on day 10
	3.75 L	1.62 L	59000	**7000**	44000	87000	1.35 L	2.04 L	2.47 L	2.53 L
2	2.82 L	3.04 L	2.35 L	79000	**56000**	1.24 L	2.64 L	2.48 L	2.57 L	2.78 L
3	1.91 L	1.23 L	**96000**	98000	1.67 L	2.38 L	2.52 L	2.76 L	2.91 L	2.82 L
4	2.46 L	79000	**13000**	48000	99000	1.59 L	1.93 L	2.36 L	2.47 L	2.58 L
5	3.80 L	2.81 L	1.44 L	**92000**	98000	2.23 L	2.86 L	2.97 L	2.78 L	2.79 L

Conclusion

Oleander poison ranks as the second most common poisoning in south India. Cardiac arrhythmias, heart blocks due to the cardiac glycosides are the most dreaded complication. Thrombocytopenia as a complication of oleander poisoning is not well studied, eventhough it was described as an unpredictable, rare, idiosyncratic complication in digoxin toxicity.

Thrombocytopenia can be seen in both acute overdosing of digoxin and also in chronic toxicity. The idiosyncratic nature of this complication makes it difficult to predict it. Studies for the association of dose of oleander poison intake, time gap in initiation of treatment and severity of thrombocytopenia are not well established due to the lack of appropriate studies conducted in this regard. Taking into consideration the huge caseload of oleander seed poisoning, it is not prudent to disregard this as a rare phenomenon, as Fab, the only known antidote for this poisoning is not readily available and affordable in our country.

Bibliography

1. Gopalakrishnan, S.K., Kandasamy,Issac etal.Oleander toxicity- the clinical spectrum and mortality predictors: An observational study. Internet Journal of Medical Update- EJOURNAL, 12(1),4. Doi:10.4314/ijmu.v12i1.2
2. Pirovino M, Ohnhaus EE,von Felton A.Digoxin- associated thrombocytopenia. Eur J Clin Pharmacol.1981 Feb:19(3):205-7.doi: 10.1007/BF00561950.PMID:7215418
3. Bataille C, Capaldo L, Courtois A, Seguy B, Lotiron C, Labadie M.Toxic thrombocytopenia during *Nerium oleander* poisoning.Clin Toxicol (Phila).2018 Nov;56(11):1170-1171.doi:10.1080/15563650.2018.1473582.Epub2018 May 15.PMID: 29764236.