The GI symptoms in acute or chronic toxicity include anorexia, weight loss, failure to thrive in paediatric patients, nausea, vomiting, abdominal pain, diarrhoea and mesenteric ischemia (a rare complication of rapid IV infusion). Hallucinations caused by digitalis have been reported since 1901. The literature suggests that digoxin has more chances of causing toxicity in the elderly.

**Case Report**

Here in we present a case of auditory hallucination precipitated as a result of Digoxin intoxication with brand Lanoxin. A women aged 52 years was admitted in medicine intensive care unit (MICU) of the HNB Base Hospital, Srinagar, Pauri-Garhwal, Uttarakhand on 27 March, 2014 with provisional diagnosis of Chronic Obstructive Pulmonary Disease (COPD) with Cor Pulmonale and Decompensated Cardiomyopathy (DCMP) with swelling of lower limb. On admission she was put immediately on Oxygen with tablet Lanoxin (0.25mg), tablet Pantop (4mg), injection Emset (4mg), injection Ceftriaxone (1gm-after sensitivity testing), injection Dopamine one ampoule in 500ml normal saline (NS) at the rate of 15-20 drops per minute and injection Lasix (4mg). All these were given stat. During her hospitalization the medication was continued. On 7 April 2014 she developed auditory hallucination and Lanoxin was suspected to be the causative agent, hence was stopped. Blood investigation showed elevated ESR of 42mm/hr. No other relevant blood investigation findings were there. On 10 April 2014 she completely recovered from the hallucinated state.

**Discussion**

Digoxin and other cardiac glycosides commonly produce ADRs because they have a narrow therapeutic window with margin between the therapeutic and toxic dose being very small. Even though there is considerable inter individual variation; the plasma concentration of digoxin in excess of 2 nanograms/mL is considered to be an indication that the patient is at special risk. As a result, there have been many fatalities, particularly due to cardiac toxicity.

Medicines with narrow therapeutic window need continuous monitoring. Comparable cases of auditory hallucination correlating with our finding of digoxin induced hallucination, with no other associated feature of digoxin toxicity have been reported. The cause of precipitation of central nervous system symptoms can be due to inhibition of RBC membrane Na+K+ ATPase activity, hypothesizing the role of hypothalamic digoxin in neuroimmunoendocrine integration. Studies suggest that digoxin intoxication may be facilitated by addition of mild diuretic. It has been suggested that digoxin can cause delirium and other psychotropic side effects like depression, visual hallucinations at therapeutic levels in elder persons due to digoxin's protein-binding capacity, which, for malnourished elder persons with low albumin, could result in an actual higher
plasma level than that measured by serum blood levels. Medicines including digoxin which have anticholinergic activity are known to cause delirium among elderly patients in acute care setting. Medicines including digoxin which have anticholinergic activity are known to cause delirium among elderly patients in acute care setting.

**Analysis**

The Naranjo’s Scale was designed to assess drug interaction probability. As per this scale our score was +5 indicating that the ADR was from the category ‘probable’.

**Conclusion**

Digoxin toxicity is known and may result from raised plasma concentrations or increased sensitivity to digoxin. It is advisable to watch for early signs of digoxin toxicity. Number of factors may influence the response to digoxin which includes renal impairment, extremes of age, thyroid disease, patient compliance, drug interactions, enzyme inhibition and electrolyte disturbances. We found auditory hallucination with digoxin. The casualty assessment supported our probable diagnosis. It is perceived that electrolyte imbalance may have led to toxic effects as patient was also on diuretics along with digoxin.

Due to the increasing awareness to ADR; these are taken seriously and therefore are reported early. This rise in ADR reporting indicates that clinicians, clinical staff and consumer patients - all are more vigilant now. Noticing and notifying the ADR due to digoxin by the physician in the case is an appreciable effort.

**Acknowledgement**

We acknowledge the inputs of Mr Ashwini Kumar Singh, Technical Associate from Indian Pharmacovigilance Committee in pursuing this ADR as soon as it was notified.

**REFERENCES**


The long QT syndrome (LQTS) is a primary electrical disease which is characterized by prolongation of the disordered ventricular repolarization of the corrected QT on the surface ECG. This disease is caused by various mutations in at least seven genes coding for cardiac ion channels. There are seven known types of inherited LQTS. The most common ones are LQTS 1, 2, and 3. In LQTS 1, emotional stress or exercise (especially swimming) can trigger arrhythmias. In LQTS 2, extreme emotions, such as surprise, can trigger arrhythmias. In LQTS 2, extreme emotions, such as surprise, can trigger arrhythmias. In LQTS 3, a slow heart rate during sleep can trigger arrhythmias.

**Long QT syndromes can be associated with**

- Jervell and Lange-Nielsen syndrome (congenital deafness, syncope and sudden death) and
- Romano-Ward syndrome (same as above except deafness)

The congenital long QT syndrome (LQTS) is characterized by abnormally prolonged ventricular repolarization due to inherited defects in cardiac sodium and potassium channels, which predispose the patients to syncope, seizure like activity, ventricular arrhythmias, and sudden cardiac death.

- Journal of The Association of Physicians of India