



ACCIDENTAL LEVOTHYROXINE POISONING

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ABSTRACT

Children with exploratory levothyroxine ingestion remain asymptomatic or suffer only minor effects, and most patients can be managed in the home or with supportive care in the hospital. However, cases with significant complications have been reported (1). Late-onset symptoms seem to be common. However, all symptoms resolved spontaneously without or with minimal need of medical care. Here we report a 3 year old girl with accidental ingestion of about 100 tablets of 100 ug of thyroxine tablets. Initially child was a symptomatic, later she developed symptoms of hyperthyroidism. Thyroid function tests were abnormal and after about one month values normalised. (Table1)

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INTRODUCTION

A 3year old girl was brought to the casualty with h/oaccidental ingestion of T.Eltroxin. Mother of the child is a k/c/o hypothyroidism and was on treatment with T.Eltroxin (100mcg) daily. The actual number of tablets taken by the child is not known but 90 tablets were said to be missing. Mother induced vomiting in the child and brought the child to the casualty within 1 hour of ingestion. Stomach wash with Activated charcoal was given. The probability of delayed occurrence of complication was explained and the child was admitted for observation. The child was asymptomatic initially. After 4 hours of ingestion the child had tachycardia (130/min) and sleeping pulse rate of 110/min. O/E child was afebrile, blood pressure was within normal limits. ECG was taken and it showed sinus tachycardia. After 9 hours of ingestion the child started having high grade fever spikes. Propranolol was started for the child at the dose of 1mg/kg/day. After about 18 hours child developed loose stools which was managed conservatively.

Table 1 Time taken for appearance of symptoms

Table with 2 columns: Time, Symptoms. Rows: 4 hours Tachycardia, 9hours Fever, 18hours Diarrhoea

Thyroid function test was done and the values are summarized.

Table 2

Table with 4 columns: Hours after ingestion, FT3 [normal-2.0-4.4 pg/ml], FT4[normal-0.65-1.75ng/dl], TSH [normal-0.54-4.53uIU/ml]. Rows: 18 hours, 90 hours, Day 8, Day 28

T3= Triiodothyronine, T4= thyroxine and TSH= thyroid stimulating hormone.

Table 3 Time taken for disappearance of symptoms

Table with 2 columns: Symptom, Time. Rows: Tachycardia One week, Fever 3 days, Diarrhoea 2 days

After about a week when tachycardia settled, propranolol was tapered and stopped. Child is under follow up and is doing fine.

DISCUSSION

Levothyroxine poisoning is rarely associated with a severe outcome. The symptoms associated with levothyroxine ingestion are fever, tachycardia, loose stools, agitation, vomiting, hyperactivity, flushing, tremors, desquamation of palms and soles, hypertension, insomnia and seizures (1,2). There is no association between the ingested doses and occurrence of severity of symptoms (3) (Tunget et al). Regulatory biochemical mechanisms might be the reason why even large doses lead to mild toxicity. There is evidence to suggest that the body responds to large LT doses with the production of biologically inactive reverse triiodothyronine (rT3) to maintain euthyroid state.(4,5) LT also binds tightly to plasma proteins (6), this might be another reason why ingested thyroid hormones prevents toxicity from developing. Half life elimination of levothyroxine is 6-7 days for people with

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normal lab results, 9-10 days for people with hypothyroidism, 3-4 days for people with hyperthyroidism (7). Hence the onset of symptoms can be delayed upto 11 days. Clinical effects depends largely on tissue concentration of T3, and the delayed symptoms might be indicative for the conversion of LT to T3.(8) However adults are more prone to develop symptoms, explained by existing comorbidity including renal, hepatic and cardiac disease that predisposes to develop serious adverse reactions.(9,10) In symptomatic patients with tachycardia propranolol can be used (11). In severely symptomatic patients steroids and propylthiouracil can be used (11). Plasmapheresis have been used in the past to the patients with significant cardiac or neurological symptoms (12).

## CONCLUSION

The clinical outcome of LT poisoning is often benign, and accidental intake of LT in moderate doses does not require clinical monitoring. Defining a lowest toxic level is difficult. However, during follow-up, some children develop late-onset LT-related symptoms. None of them were serious or needed further treatment. Occurance of late complications should be communicated to the parents and the children should be carefully followed up for initial few days. Levothyroxine is available in various colored tablets and has no noxious taste making it attractive to children. Adults who are on thyroid hormone supplements should always be cautioned to keep these tablets beyond the reach of children, so that unintentional thyroid poisoning can be avoided.

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