

TABLE I SERIAL THYROID FUNCTION TESTS AFTER LEVOTHYROXINE INGESTION

Hours since ingestion	T ₃ (mg/dL for total, pg/mL for free)	T ₄ (mg/dL for total, pg/mL for free)	TSH (mIU/mL)
51 hrs*	311.5 [Normal 100-260]	>30 [Normal 5.5-12.8]	0.11 [Normal 0.7-6.4]
93 hrs [#]	16.9 [Normal 3.5- 10.0]	1.9 [Normal 0.8- 2.2]	0.14
161 hrs [#]	6.08	3.23	0.02
28 days [#]	3.88	1.36	2.91

T₃= Triiodothyronine, T₄= thyroxine and TSH= thyroid stimulating hormone. *Total, T₃ and T₄; [#]Free T₃ and T₄

136/min). ECG showed sinus tachycardia. The total T₃ and T₄ levels were elevated: levels of thyroid stimulating hormone were low (**Table I**). Child was started on propranolol 1 mg/kg/day. Tachycardia settled 7 days after propranolol was started and the drug was subsequently stopped. The serial fT₃, fT₄ and TSH levels are summarized in **Table I**. The younger sibling was symptom-free at presentation and on subsequent follow ups.

Children with levothyroxine overdose may have symptoms like fever, flushing, palpitations, increased sweating, tremors, irritability, increased bowel movements and convulsions. They may have tachycardia, hypertension and cardiac arrhythmias [1]. Levothyroxine overdose in children typically follows a benign course [2]. The onset of symptoms may be delayed up to 11 days after ingestion of a massive dose of levothyroxine ingestion, given the half life of levothyroxine of approximately 7 days [1]. Propranolol is used to reduce the symptoms. In severely symptomatic patients, steroids and propylthiouracil can be used [3]. In patients with significant cardiac or neurological symptoms, extractive techniques (charcoal hemoperfusion and/or plasmapheresis) have been used in the past [4, 5].

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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Genetic Anticipation and Autism

We report on a boy who was brought to our Pediatric Early Intervention Clinic for evaluation of speech and language delay at 3 years of age. He was born by normal vaginal delivery at full term with birth weight, length and head circumference, 3.4 kgs (25th centile), 48 cm (9th centile) and 35 cm (25th centile), respectively. Physical and systemic examinations were normal with no dysmorphic features. Evaluation revealed delay in

communication, fine motor and personal social skills. Hearing tests on two previous occasions were normal. He had tendency to repeat words (echolalia) and showed some stereotypic interests in his behaviour. Repeat psychological assessment after six months revealed deteriorating personal social skill with further decline in social interaction. A diagnosis of autistic spectrum disorder (DSM-IV-TR) was made. There was history of poor scholastic achievement in father in his young age but he did not have problems in communication or social interaction. Mother and grandparents had no such history.

Metabolic investigations were normal and cytogenetic study revealed normal male karyotype. Targeted array-based comparative genomic hybridization revealed a microdeletion of 540kbp from chromosome 7q33 (136,018,399-136,558,387) × 2 region. This deletion was merely encroaching the gene *CHRM 2* which has a role in central nervous system functioning, although its exact role in autism has not been elucidated so far. Parental analysis revealed a loss of 42 kbp from the same 7q33 (136,258,387-136,300,365) × 2 region in father's side. Maternal chromosomal analysis was normal.

The distal region of chromosome 7q is home to many important genes, the deletion/ duplication of which has been reported with varying phenotypes. Matsson, *et al.* [1] reported association of *DGKI* (diacylglycerol kinase iota) gene at chromosome 7q33 with developmental dyslexia in Finnish and German cohorts. *Contactin Associated Protein-like 2 (CNTNAP2)*, a member of the Neurexin family gene located at 7q34 has been linked strongly with autism [2,3]. There are several other suspicious loci on different chromosomes which are supposed to be linked with autism. Speech and language region which has been most sought to be associated with autism lies at 7q31-33 with *FOXP2* and *WNT2* genes in region 7q31 being more specific to speech delay and autism, respectively [4,5].

Genetic anticipation is a phenomenon in which symptoms of a disease manifests earlier after passing on to next generations. Small deletion at 7q33 region in father with larger deletion at the same region in son

alongwith early presentation of typical ASD features explains the possibility of anticipation in the inheritance of genes related with ASD at 7q33 region. Further clinical validation is important as it may have practical significance on genetic counselling and timing of surveillance initiation. Further research is needed to explore the underlying mechanism of anticipation related with chromosome 7q33 and autism.

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Prescription of Generic Drugs – Is it Really a Smart Initiative?

A generic drug is a drug which has the same constituents, dosage form, strength and quality as the reference/ branded drug and is marketed under a non-proprietary name after expiry of the original drug patent [1]. The Government of India recently announced its mandate to stop issuing license for the manufacture or sale of branded drugs in an effort to promote prescription of only generic drugs for patient care, applicable at all government hospitals [2]. It launched the 'Jan Aushadhi' campaign for distribution of these generic drugs [3]. The above policy was introduced to curb the presumed

malpractice associated with use of branded drugs, wherein the doctors' prescription may be biased by pharmaceutical companies. Thus, it was anticipated that by prescribing only generic drugs, the malpractice of dispensing costlier medications would be reduced.

However, the following facts need mention to comprehend the present situation. First, the production and availability for most of the generic drugs is limited to few *Jan Aushadhi* stores, which have insufficient stock of medicines or are non-functional [4]. The only source of medication-provider for the patient is thus the local pharmacy. This leaves the patient to the mercy of the dispenser, who can dispense any brand available for the generic drug prescribed and supposedly make the 'most suitable' drug choice for him. Second, many patients