

# Biotin Case Study Summary – Thyroid Hormones\*

- 6 children (ages 1 month - 9 years) receiving high-dose biotin treatment for inherited metabolic diseases
- During routine examination, lab results suggestive of Graves' disease found in all 6 patients:

- ↑ • Free T4
- ↑ • Total T3
- ↑ • Anti-Thyrotropin Receptor Ab's
- ↓ • TSH



- Lab results led to initiation of anti-thyroid treatment in these children
- Ultra-sonographic scans of the thyroid were normal
- Literature search identified biotin issues, and biotin treatment immediately discontinued
- Free T4, Total T3, and TSH normalized 1-2 days after biotin discontinuation, but anti-thyrotropin receptor Ab's took up to 1 week to normalize

# Key Takeaways from Case Study

- Biotin interference caused incorrect lab results
  - Some markers falsely ↑
  - Some markers falsely ↓
- Combination of incorrect results mimicked disease pattern that clinicians recognize, resulted in incorrect diagnosis of Graves' disease
- Children unnecessarily treated with anti-thyroid medication, and ultra-sonographic thyroid scans conducted
  - Patient Safety ↓
  - Testing Costs ↑
- Even after biotin discontinuation, some results didn't normalize until 1 week later

The summary of this article has been prepared and approved by Abbott Laboratories.

