

Biotin Interference in Laboratory Tests

Introduction

The manufacturers of laboratory tests often utilise a method using biotin-streptavidin interaction to generate accurate quantification of small molecules. Biotin in blood or other samples taken from patients on high dose biotin supplements may cause inaccurate test results that can be falsely high or falsely low.

Biotin supplementation has recently increased due to its purported effects on hair, nails, and skin. It's nowadays found in prenatal multivitamins and supplements at levels that may interfere with lab tests. Biotin at higher doses can be used by physicians in the treatment of certain disorders.

Over-the-counter products can contain biotin doses from 50µg in multivitamin supplements up to 10mg in biotin-only products. For microgram doses, the half-life is 1.8 hours whereas a dose of 100-300mg is 7.8-18.8 hours.

A high dose of biotin (>5mg per day) can interfere with a number of common immunoassay-based tests including: TSH, free T4, free T3 and TPO antibody and can cause spurious results. While most analytes show a negative bias some can cause positive bias.

Avoiding Spurious Results:

Ask if your patient is taking biotin before sending them for a blood test. *(Figure below adapted from Roche information)*

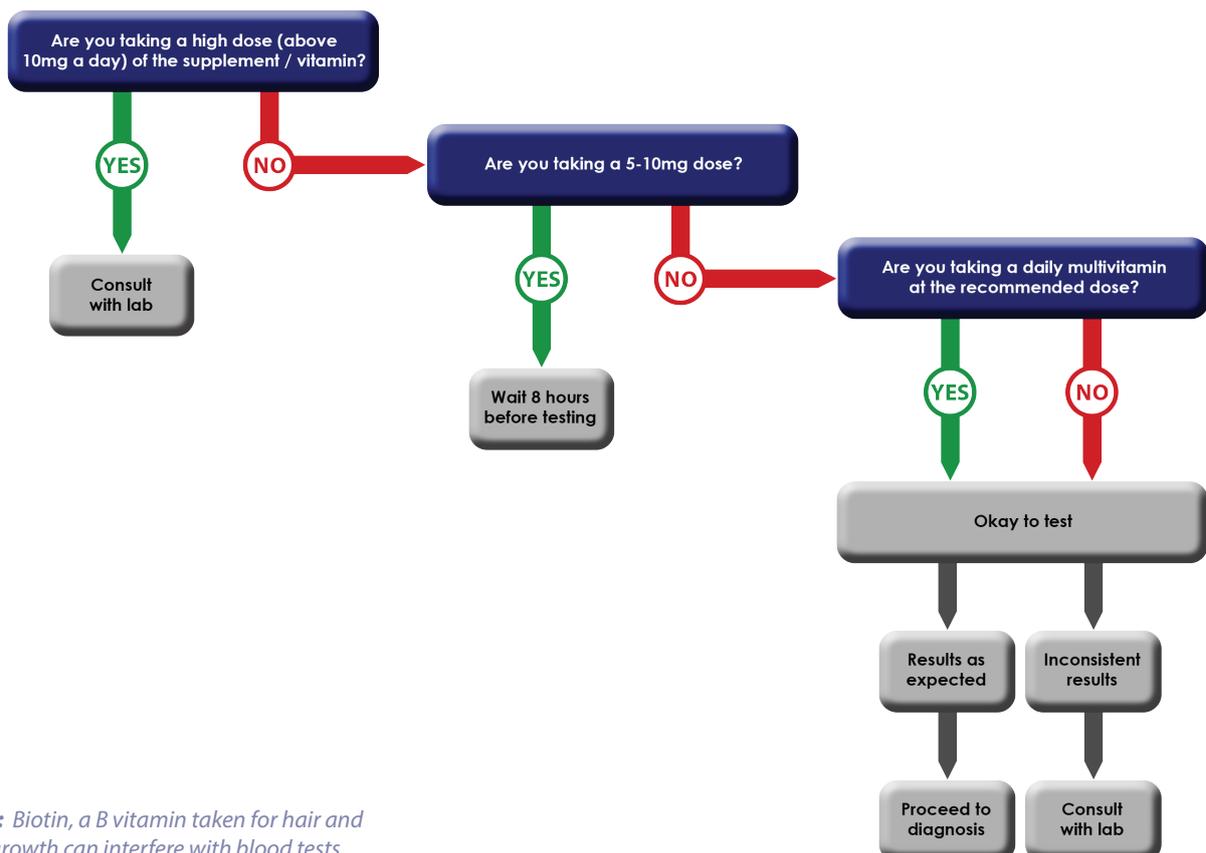


Fig 1: Biotin, a B vitamin taken for hair and nail growth can interfere with blood tests

Interference in Immunoassays in the Laboratory & Dosage of Biotin Supplements



- Include 'on biotin therapy' within the clinical notes section of the lab request form and the dosage if known.
- If the lab test result does not match the clinical presentation of your patient, and if the patient is known to take biotin supplements, consider interference and communicate this to your laboratory for advice on interpretation and further testing.