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Biotin's Interference on Immunoassays and its clinical implications

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The use of biotin as an aesthetic and therapeutic agent has become highly commercialized with indiscriminate use among patients. However, its purported benefits in hair disorders is dubious with overwhelming evidence supporting its efficacy in nail disorders and its interference in cardiac and endocrine test results (e.g. Troponin T, TSH, NT-proBNP, HCG). The primary aim of this study was to elucidate findings on biotin susceptible immunoassays and their impact on lab results and subsequent interpretation. Published cases were identified using Google Scholar, PubMed, and Cochrane Library. The search strategy included the following key terms: "biotin" and "immunoassay" and "interference" or "hair" or "nail". 26,420 articles were retrieved with exclusion of studies that were specific to the chemistry of the immunoassay itself. We found significant associations between biotin use, most commonly in levels 10 ng/mL and irregularities in blood Troponin T, NT-proBNP, TSH, and HCG results.¹ Indiscriminate use of biotin among patients may be clinically dangerous if clinicians are unaware of potential lab interactions. Initiatives aimed at documenting patient-reported supplement use at clinic visits or prior to lab work should be considered going forward. Moreover, patient education is critical to dispel the myth of biotin's efficacy in hair disorders and warn of its harm in laboratory interpretations.

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