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Pediatric laboratory-based screening methodology for nutrition-based disorders

Steven J Melnick

Nicklaus Children's Hospital, USA

Pediatric nutritional status assessment, typically reserved for children with overt clinical manifestation of nutrition-based disorders requires comprehensive and time-consuming clinical and laboratory evaluation. However, many more children may be at risk for these disorders; long latency periods for clinical manifestation of primary and secondary (mal-absorption, autoimmune, metabolic, genetic disorders and drug side-effects) nutritional deficiencies/insufficiencies and conditions related to over-nutrition, principally obesity and associated metabolic consequences. The latter form of malnutrition is complex and overlaps with conditions related to nutrient deficiency/insufficiency. Conventional nutritional evaluation is neither appropriate nor practical for the general pediatric population who are at risk for nutrition-based disorders. Given the scope of this societal health challenge, a more practical solution for recognizing children at risk for these disorders is beneficial. Such a screening tool must be evidence-based, easily administered and informative so that children with subtle manifestations of nutritional inadequacy or those at risk can be identified and directed to precise evaluation and nutritional/lifestyle interventions. This is the basis of the nutritional status screening panel known as the TOP™ (Test-Optimize-Perform) test. The panel addresses two principle categories of nutritional status; deficiency/insufficiency and nutrient metabolism. The analytes are; vitamin B12, folate, vitamin D, iron, ferritin, total cholesterol, HDL-c, Non-HDL-c, HbA1c, homocysteine, transthyretin, hs-CRP, GGT and ALT. The panel is designed to directly or indirectly assess nutrient or micronutrient inadequacies and nutrition-acquired metabolic disorders as suggested by analytes that reflect lipid and carbohydrate metabolism, protein status, inflammation/oxidative stress, insulin resistance and mitochondrial dysfunction. Details of the rationale are presented.

Biography

Steven J Melnick has earned BSC in Physics and PhD in Chemistry from McGill University. He has obtained MD degree from Queen's University. He has completed his Pathology residency at Mount Sinai Medical Center, Miami Beach, FL and subsequently joined the Department of Pathology and Clinical Laboratories at Nicklaus Children's Hospital where he serves as Department Chief. He directs research involving therapeutic development in cancer, immunology and metabolic disorders since 1999, published more than 85 papers in peer-reviewed journals and acquired intellectual property based on this research. He serves as an Editorial Board Member of the *Journal of Natural Products in Cancer Prevention and Therapy*.

steve.melnick@mch.com

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