

New insights into pediatric POTS: tailored therapies improve outcomes

GA, UNITED STATES, March 18, 2025 /EINPresswire.com/ -- A recent review has shed new light on the management of pediatric postural orthostatic tachycardia syndrome ([POTS](#)), a chronic condition causing dizziness, fatigue, and fainting, often triggered by standing. The study emphasizes the importance of personalized treatment strategies that focus on underlying mechanisms such as central hypovolemia, vascular dysfunction, and hyperadrenergic states. By tailoring therapies to the unique physiological and biochemical profiles of each patient, researchers are making strides in improving the outcomes for children affected by this challenging condition.

Postural orthostatic tachycardia syndrome (POTS) is a form of chronic orthostatic intolerance that primarily affects children and adolescents, leading to debilitating symptoms like lightheadedness, blurred vision, and fatigue upon standing. Unfortunately, the condition is often misunderstood and misdiagnosed, complicating its management. While current treatments range from physical therapies to pharmacological options, their effectiveness can vary significantly between patients. The lack of a standardized treatment approach, combined with the complex nature of the condition, has made it difficult to predict which therapies will work best for each individual. Given these challenges, there is an urgent need for more personalized treatment strategies based on a deeper understanding of POTS' underlying mechanisms.

Published (DOI: 10.1002/pdi3.2509) in *Pediatric Discovery* on November 24, 2024, a comprehensive review led by researchers from Peking University First Hospital explores these mechanisms and presents individualized management strategies for pediatric POTS. The review emphasizes the importance of identifying key physiological and biochemical markers, such as central hypovolemia and hyperadrenergic states, which can guide clinicians in choosing the most effective treatments for each patient.

The study explores a range of treatment options, including physical therapies like exercise training and orthostatic maneuvers, which have shown promise in improving autonomic function. However, not all patients respond equally, highlighting the need for a tailored approach. For example, biomarkers such as baroreflex sensitivity (BRS) and 24-hour urinary sodium levels have been identified as valuable predictors of a patient's response to oral rehydration salts (ORS). Similarly, heart rate changes during head-up tilt tests (HUTT) and plasma norepinephrine levels can help guide the use of β -blockers like metoprolol. The review also highlights the role of α -adrenergic agonists, such as midodrine hydrochloride, for patients with

peripheral vascular dysfunction, with biomarkers like midregional pro-adrenomedullin (MR-proADM) and flow-mediated dilatation (FMD) aiding in the prediction of treatment efficacy. These findings emphasize the potential of a biomarker-driven, multi-faceted approach to managing pediatric POTS.

"Individualized treatment strategies are the future of managing pediatric POTS," says Dr. Junbao Du, the lead researcher. "By understanding the specific mechanisms driving each patient's condition, we can tailor therapies that are not only more effective but also minimize unnecessary interventions. This approach represents a significant step forward in improving the quality of life for children with POTS."

The implications of this review are far-reaching for the clinical management of pediatric POTS. By leveraging biomarkers and other physiological indicators, clinicians can move away from a one-size-fits-all approach and adopt more personalized treatment plans that are likely to yield better results. This could lead to faster symptom relief, fewer hospital visits, and improved long-term outcomes for patients. Furthermore, the study opens the door for future research into additional biomarkers and treatment combinations, potentially revolutionizing the management of POTS and similar conditions in pediatric populations.

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