Reference: (1) Zhao H, et al.,PNAS. 2018 Oct 30;115(44):E10427-36.

Healthcare Delivery and Education

EXPANDING CLINICAL CONSIDERATIONS FOR PATIENT TESTING AND CARE

Incorporating Transgender Competent Care into the Medical School Curriculum

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Abstract: Incorporating Transgender Competent Care into the Medical School Curriculum

Background: According to recent estimates, the US transgender population has doubled in the last decade. Incorporating transgender competent care into medical education is a growing need, and a focus of the AAMC. Care of the transgender individual is multifaceted, and medical school curriculae on transgender care are limited and lack standardization. Similarly, strategies for measuring effectiveness and impact of these curriculae remain limited.

Methods: Over 3 years, the use of a transgender clinical correlation in the endocrine section of the second-year medical student pre-clerkship curriculum progressed to the use of a triple modality intervention. This included (1) a self-directed written handout with terminology and the basic tenants of medical transition therapy with an optional podcast, (2) a traditional presentation covering social, ethical and multi-disciplinary transgender care, and (3) an interactive session with a transfemale and transmale patient. An anonymous 8 question pre-and post-intervention survey using an electronic clicker system was performed. Questions included interest level, comfort level with various aspects of transgender-competent care and resource awareness.

Results: Prior to the intervention, 74% of students were interested in learning more about transgender competent care. After the learning intervention, in all questions focusing on knowledge and skills of transgender care, students reported a significant increase in their comfort level (Figure 1, $p<0.5$, all). This included reporting now higher comfort levels regarding goals of hormone therapy (8 to 63%), use of transgender affirming medications (19 to 44%), barriers to care (30 to 79%), and long term and multidisciplinary care (8 to 63% and 13 to 71%, pre- and post-intervention respectively). At the end of the intervention, students felt they had more resources to access information about transgender-competent care (pre-23% to post-94% $p=<0.05$).

Conclusion: Knowledge and skills in the care of transgender individuals is poor in the pre-clerkship medical school years. The interest to learn about transgender care is positive. This multi-modality intervention was successful in increasing medical student comfort and knowledge about comprehensive transgender care, and increased student awareness of available resources. Introduction of transgender care should be implemented early in medical student training.

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Figure 1. Change in student comfort across transgender competent care.

* $p < 0.05$

Adrenal

ADRENAL PHYSIOLOGY AND DISEASE

Electron Transport Chain Complex 2 in Mitochondrial Pregnenolone Synthesis

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The mitochondrial P450 family of enzymes (SCC), which require the electron transport chain (ETC) complexes III, IV and V, initiate steroidogenesis by cleaving the sidechain of cholesterol to synthesize steroid hormones, an essential component for mammalian survival. SCC is required for full-term gestation, and aberrant expression may cause pseudohermaphroditism, breast cancer or polycystic ovary syndrome. Complex II or succinate dehydrogenase (quinone) is shared with the TCA cycle and has no proton pumping capacity and no known role in steroid synthesis. We now show that succinate is an intermediate metabolite in the TCA cycle and plays a central role physiologically. Specifically, complex II is required for SCC activation, where the proton pump facilitates an active intermediate state conformation at the matrix, so that in the presence of succinate, ATP can add phosphate. A longer intermediate equilibrium state generates a transient stabilization to enhance the binding of phosphate anions in the presence of succinate anions, resulting in higher enthalpy and activity. An inhibition of the processing at the intermediate state stops phosphate addition and activity. We further describe that phosphate circulation brings the molten globule, an intermediate, to an active folded state. This is the first report showing that an intermediate state activated by succinate facilitates ETC complex II interaction with complexes III and IV for metabolism.

Pediatric Endocrinology

PEDIATRIC GROWTH AND ADRENAL DISORDERS

First Report of Disease-Specific Patient-Reported Outcomes from a Randomized Phase 2 Trial of Once-Weekly Somapacitan vs Daily GH in Children with GHD

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