Session Title: MAD About POTS: A Dangerous Duo Preceding Cardiac Arrest in a Young Adult

Session Description

Evidence informing physical therapy (PT) management for patients with dysautonomia has grown substantially in the post-COVID era. Concurrently, trends in sudden cardiac arrest (SCA) in young adults have prompted questions regarding screening and risk factor mitigation. This case report describes the outpatient PT plan of care (POC) for a young adult who survived SCA associated with a rare co-occurrence of dysautonomia and structural heart abnormality. A 19-year-old female with a history of Long COVID, postural orthostatic tachycardia syndrome (POTS), and mitral valve prolapse experienced a witnessed SCA while ambulating on her college campus. Her heart rhythm was in polymorphic ventricular tachycardia/ventricular fibrillation with return of spontaneous circulation achieved after chest compressions, defibrillation, and epinephrine, with a total downtime of approximately 10 minutes. During her hospitalization, diagnostic imaging revealed mild mitral annular disjunction (MAD), and a subcutaneous ICD was implanted. The patient also exhibited right lower extremity neuromuscular impairments consistent with sciatic mononeuropathy. The outpatient PT evaluation occurred 18 days post-SCA. The POC emphasized cardiovascular monitoring, progressive gait and activity training, and strengthening. The 6-Minute Walk Test, 2-Minute Step Test, 10-Meter Walk Test, Mini-BESTest, lower extremity strength, and vital signs were measured across the 8-week plan of care, with significant improvement in all categories. The patient returned to an independent community ambulator status and full participation in her roles and responsibilities. This case underscores the importance of standardized outcome measures and vigilant physiological monitoring in evidence-informed PT management of young adults with complex cardiac presentations in the outpatient setting.

Lecture

Teaching Method

Objectives

1. Recognize the rare intersectionality of autonomic dysfunction and structural heart disease
2. Describe psychosocial contextual factors in the young adult that impact recovery
3. Identify effective tests and measures to inform impairment-based intervention plan
4. Appraise the outcomes for significance and application to young adults with complex cardiac presentations

What will be the clinician/educator takeaways/skills that can be utilized immediately?

Despite the unique and complex components of this patient's health conditions, clinicians will gain a renewed sense of confidence in their ability to evaluate and treat young adults with complex cardiac presentations in the outpatient setting through a balanced, systems-based approach rooted in the importance of standardized outcome measures and physiological response monitoring to inform clinical decisions.

Recommended Content Level

Intermediate

References:

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4. Gibbons CH, Silva G, Freeman R. Cardiovascular exercise as a treatment of postural orthostatic tachycardia syndrome: A pragmatic treatment trial, Heart Rhythm, Volume 18, Issue 8, 2021, Pages 1361-1368, ISSN 1547-5271, https://doi.org/10.1016/j.hrthm.2021.01.017.

5. Powers CD, Miranda NA, Davenport TE. Physical Therapy Management of Postural Orthostatic Tachycardia Syndrome Using a Pacing-Forward Clinical Approach: A Case Report. The Internet Journal of Allied Health Sciences and Practice. 2025 Apr 15;23(2), Article 29.

6. Wu S, Siegel RJ. Mitral annular disjunction: A case series and review of the literature. Front Cardiovasc Med. 2022;9:976066. Published 2022 Aug 12. doi:10.3389/fcvm.2022.976066

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8. Walter KL. Cardiac Arrest in Apparently Healthy Young Adults. JAMA. 2025;333(21):1936. doi:10.1001/jama.2025.3949

Speaker Bios:

Megan Kim, PT, DPT, ATC, LAT currently serves as an Assistant Professor for the Elon University Department of Physical Therapy Education. She is a board-certified geriatric clinical specialist with 12 years of acute care clinical experience, additionally working in outpatient and preschool settings. She previously served as a member of the Nova Southeastern University - Fort Lauderdale DPT faculty. Prior to the full-time transition into academia in 2020, she completed NSU's ABPTRFE accredited Faculty Development Residency Program. Additionally, she received her Doctor of Physical Therapy (DPT) degree in 2013 and Bachelor's in Athletic Training in 2010 from NSU. She is an avid supporter for the advancement of excellence in physical therapy education and active member of the American Physical Therapy Association (APTA). She is a 2024 ACAPT Empowering the Academic Physical Therapy Leadership Team Program and 2023 Grant Writing & Mentoring in Education Research (GAMER) Workshop participant. She currently serves as the Publicity & Networking Chair for the PT Proud SIG under the Academy of Leadership & Innovation. She teaches DPT courses related to Management of Cardiopulmonary Dysfunction, Clinical Reasoning and Therapeutic Exercise, and
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Crystal Ramsey is an associate professor in Elon’s Department of Physical Therapy Education (DPTE) with over 15 years of clinical experience working with individuals who have neuromuscular injuries or disorders. As a Board-Certified Neurologic Clinical Specialist, her teaching responsibilities include the evaluation and treatment of individuals who have vestibular disorders, dysautonomia, brain injuries, or spinal cord injuries. Her research interests and publication history includes concussion in service members and brain injuries in older adults. Additionally, she co-authored a third edition of the textbook Mobility in Context. She is currently pursuing a PhD at the University of North Carolina at Chapel Hill in Human Movement Sciences with a concentration on brain injury/concussion.