DEPARTMENT OF BIOMEDICAL ENGINEERING SEMINAR SERIES

presents

Rebecca Vanderpool Ph.D.
Assistant Professor
Biomedical Engineering & Division of Translational and Regenerative Medicine

“Right Heart Failure and Diastolic Stiffness in Pulmonary Hypertension”

Abstract: Right ventricular (RV) failure is the main cause of mortality in patients with pulmonary hypertension. Resting invasive hemodynamics do not associate with outcomes. There is a critical need to develop a diagnostic and prognostic biomarking approach to differentiate high-risk patients for early/aggressive treatment. RV diastolic stiffness is an important predictor of outcomes in PAH patients and has been associated with increased RV fibrosis and intrinsic mechanical changes in the RV. Previous work shows that PAH patients on prostycyclin therapy, which targets the pulmonary circulation, improves RV function and decreases diastolic stiffness. Exercise testing is a method to evaluate the ability of the RV to adapt to acute changes in afterload. Measures of right ventricular contractile reserve are potential objective measures of the degree of remodeling has occurred in the right ventricle. This presentation investigates whether resting systolic and diastolic RV function associate with surrogates of RV contractile reserve in patients with advanced PAH. The presentation will conclude with a discussion on the development of a semi-automated method to construct continuous pressure-volume loops using cardiac magnetic resonance imaging and cardiac catheterizations to assess right ventricular function.

Bio: Dr. Vanderpool is an Assistant Professor at the University of Arizona with a joint appointment in the Division of Translational and Regenerative Medicine and Department of Biomedical Engineering. She received her PhD training in Biomedical Engineering at the University of Wisconsin-Madison and completed two postdoctoral trainings before starting at the University of Arizona in the Fall of 2016. During her postdoctoral training in physiology at the Université libre de Bruxelles, Dr. Vanderpool developed analysis techniques to non-invasively measure right ventricular function from echocardiography imaging in patients with pulmonary hypertension. Her postdoctoral work at the University of Pittsburgh focused on clinical research and biomedical informatics. Dr. Vanderpool developed analysis techniques that use a combination of signals from pressure transducers, echocardiography imaging, and magnetic resonance imaging (MRI) to quantify right ventricular function in patients with pulmonary hypertension. She also created a large right heart catheterization database that is linked with clinical information from imaging and mortality. My long-term research goal is to identify novel biomarkers that reflect the health of the right ventricle in order to develop therapeutic approaches to improve right ventricular function and prevent right heart failure.

Please join us on

Monday, April 2nd, 2018
2:00-2:50 pm, Keating Bldg, Room 103
Refreshments will be available at 1:45 pm

Host: Jane Mohler, Ph.D.
jmohler@aging.arizona.edu

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