including left atrial volume index (R = -0.798, p < 0.001), and the ratio of early transmural pulse-wave Doppler flow velocity (E) to early mitral annulus tissue Doppler velocity (E' (E/E = R = 0.608, p = 0.036), suggesting a role of diastolic dysfunction in patients with NAFLD with exercise intolerance. DISCUSSION/SIGNIFICANCE OF IMPACT: Cardiac abnormalities drive cardiorespiratory fitness and exercise intolerance in patients with NAFLD. These findings are exaggerated in patients with NASH suggesting a link between disease severity in NAFLD, exercise intolerance and diastolic dysfunction.

Utility of the Modified Barium Swallow Impairment Profile as an outcome measure in oculopharyngeal muscular dystrophy
Sarah Youssuf and Carol Romero-Clark
Clinical and Translational Science Center, University of New Mexico, Albuquerque, NM, USA

OBJECTIVES/SPECIFIC AIMS: Oculopharyngeal muscular dystrophy (OPMD) is a rare, late-onset muscular dystrophy that causes severe swallowing impairment (dysphagia). Although promising therapies are in the pipeline, validated dysphagia outcome measures for use in OPMD trials have not been established. Videofluoroscopic swallow studies (VFSS) are considered the clinical gold standard for dysphagia assessment. However, the optimal objective measure of VFSS in OPMD is not known. Our aim was to investigate the utility of the Modified Barium Swallow Impairment Profile (MBSiMP) as an objective measure of VFSS in OPMD patients.

METHODS/STUDY POPULATION: This was a single-center, prospective, cross-sectional study. In total, 26 individuals with OPMD underwent VFSS and other measures of dysphagia including 50-mL water swallow time (ST). Validity was assessed by examining correlations with an OPMD Global Severity Score (GSS) and with dysphagia duration. RESULTS/ANTICIPATED RESULTS: The MBSiMP demonstrated moderate correlations with GSS (Pearson r = 0.52, p = 0.006) and ST (r = 0.39, p = 0.049). The relationship between MBSiMP and dysphagia duration appeared nonlinear, and levelled off with long dysphagia duration. In contrast, ST did not correlate significantly with GSS (r = 0.27, p = 0.18), nor with disease duration (r = 0.05, p = 0.83). DISCUSSION/SIGNIFICANCE OF IMPACT: Objective measurement of VFSS is a promising outcome measure in OPMD. With long disease duration, the MBSiMP may not be sufficiently sensitive to detect disease progression. More sensitive measures for scoring dysphagia severity on VFSS should be explored for application to future s of OPMD.

Characterization of immune cell differences with anti-thymocyte globulin (ATG) and granulocyte colony stimulating factor (GCSF) in both preclinical and clinical models of type 1 diabetes
Andrea Lin, Clayton Mathews, Michael Haller, Todd Brusko, Mark Atkinson and Ryan Flynn

Virginia Commonwealth University, Richmond, VA, USA

OBJECTIVES/SPECIFIC AIMS: Understand the immunomodulatory effects of anti-thymocyte globulin (ATG) and granulocyte colony stimulating factor (G-CSF) on type 1 diabetes patients using samples and in the preclinical model, the nonobese diabetic mouse. METHODS/STUDY POPULATION: Flow cytometry analysis of phase 1 peripheral blood samples treatment of nonobese diabetic mouse with ATG and GCSF and flow cytometry analysis of immune organs (spleen, lymph nodes, blood, bone marrow). RESULTS/ANTICIPATED RESULTS: Changes in both innate and adaptive immune cell subsets including plasmacytoid dendritic cells, naive, memory, effector CD4+ and CD8+ T-cells, and CD4+ T-regulatory cells and CD8+ T-regulatory cells DISCUSSION/SIGNIFICANCE OF IMPACT: Understanding of cell targets for immunotherapy in new-onset type 1 diabetes patients.

Dose-dependent nature of cocaine infusions on cardiovascular hemodynamics
Salvatore Carbone, Benjamin Van Tassel, Antonio Abbate, Justin Canada, Leo F. Buckley III, Sade Johns, Dinesh Kadiyari and F. Gerard Moeller

METHODS/STUDY POPULATION: Patients with a history of cocaine abuse and no overt cardiovascular disease received 4 consecutive intravenous infusions of cocaine (0, 10, 20, 40 mg) given in randomized, double-blinded order. The infusion procedure was repeated on 2 consecutive days (4 infusions each day). Following each dose, patients underwent continuous monitoring via fingertip plethysmography for 30 minutes, followed by an additional 30 minutes washout procedure. Patients were surveyed throughout this timeline to record symptoms of cocaine response. Finger tracings were then used to calculate arterial pressure curves and parameters of heart rate, blood pressure, cardiac output, stroke volume, and systemic vascular resistance according to device-specific algorithms. Mean values were calculated over the entire 30 minutes follow-up and peak values were defined as the maximum value sustained over any 60-second interval during the follow-up period. RESULTS/ANTICIPATED RESULTS: Seven patients were enrolled and received cocaine infusions of 2 consecutive days. Cocaine dose was positively associated with mean cardiac output (r = 0.489, p < 0.001), peak systolic arterial pressure (R = 0.435, p = 0.001), mean heart rate (R = 0.401, p = 0.003), peak systolic blood pressure (R = 0.399, p < 0.003), peak mean arterial pressure (R = 0.362, p = 0.008), mean systolic blood pressure (R = 0.399, p < 0.003), and peak heart rate (R = 0.334, p = 0.015). Hemodynamic parameters were also predictive of patient-reported symptoms of cocaine response. DISCUSSION/SIGNIFICANCE OF IMPACT: These data confirm the known pharmacologic effect of cocaine to prevent reuptake of neurotransmitters and demonstrate the feasibility of conducting a noninvasive assessment of cardiovascular anti-retroviral (ARV) drugs. Despite the widespread use of ARV medications, optimization of initial treatment composition and subsequent management remains challenging. The goals of this study are (a) to better understand the ARV treatment structure using prior clinical and patient information including virtual phenotype data and measures of viral load and CD4 cell count. We evaluated the potential impact of ARV strategies on AIDS-defining events and mortality; (b) to assess and understand differences of treatment composition and management when comparing standard ARV strategy (<5 ARVs) with an intensive ARV strategy (at least 2 ARVs).

OBJECTIVES/SPECIFIC AIMS: Effective HIV therapeutic options for persons infected with HIV include antiretroviral therapy (ART), and management in the optima study and management in the optima study and management in the optima study. A close examination of anti-retroviral drug selection and management in the optima study and management in the optima study and management in the optima study. The trials’ design and rich database allowed for a closer examination of the ARV drug initial selection and subsequent management. Our finding summarize the patterns and discuss the effects of ARV and their management, on AIDS-defining events and survival. Such findings could provide preliminary, yet important insight, in understanding ARV use practice and could inform the conduct of future HIV treatment trials. Since the trial’s randomization was at the ARV strategy level and not the individual ARV drugs, findings cannot be described in terms of causal pathways for specific ARVs.