Submitter Name: Vanessa Troiani
Submitted email: vtroiani@geisinger.edu

Quantitative Traits Associated with Opioid Use Disorder

Vanessa Troiani[1,2], Donielle Beiler[1], Stephanie Ranck[1], Kayleigh M. Adamson[1], Sarathbabu Krishnamurthy[3], Raghu Metpally[3], Sarah Pendergrass[4], Richard C. Crist[5], Glenn A. Doyle[5], Thomas Ferraro[5,6], Janet Robishaw[7], Wade H. Berrettini[5]

[1]ADMI, Geisinger; [2]Dept. of Imaging Science and Innovation, Geisinger; [3]Dept. of Molecular and Functional Genomics; [4]Biomedical and Translational Informatics Institute; [5]Perelman School of Medicine, University of Pennsylvania; [6]Cooper Medical School, Rowan University; [7]Charles E. Schmidt College of Medicine, Florida Atlantic University

Background: The epidemiological prevalence of Opioid Use Disorder (OUD) range from < 1% in the general population to > 20% in patients treated with opioids for chronic pain, with a substantial fraction of risk estimated to be genetic. One factor limiting discovery of genomic predictors of OUD is the ascertainment of well-characterized populations that include both patients exposed to opioids without signs of OUD, as well as those with confirmed OUD. **Methods:** We report data from 1270 patients with prolonged exposure to opioids from one integrated healthcare system, Geisinger. All of these patients have whole exome data available as part of Geisinger's biobank. Patients completed self-report questionnaires that assessed quantitative characteristics of depression (Patient Health Questionnaire; PHQ-9), anxiety (Generalized Anxiety Disorder 7-item; GAD-7), nicotine dependence (Fagerstrom Test for Nicotine Dependence; FTND), and alcohol dependence (Alcohol Use Disorders Identification Test; AUDIT). Opioid misuse was assessed using the Brief Risk Questionnaire (BRQ) as well as DSM-5 Criteria for OUD. **Results:** 540 patients (42.5%) met criteria for OUD, 207 (16.3%) for mild OUD, 64 (5%) for moderate OUD, and 269 (21.2%) for severe OUD. There was a statistically significant difference between severity groups for all questionnaires (PHQ-9:$F_{(3,1266)}$=96.79, p=2.111E-56; GAD-7:$F_{(3,1266)}$=81.92, p=1.947E-48; FTND:$F_{(3,847)}$=31.89, p=1.557E-19; AUDIT:$F_{(3,1034)}$=75.97, p=2.061E-44; BRQ:$F_{(3,1266)}$=501.3, p=1.238E-214). **Conclusion:** Preliminary results suggest that quantitative measures of depression, anxiety, nicotine use, and alcohol use are informative predictors of OUD severity, as participants with severe or moderate OUD had more evidence for mood, anxiety, alcohol use and nicotine use disorders, compared to those with mild OUD.