Latent Class Modeling of Longitudinal Biomarkers in Patients with Chronic Kidney Diseases

Peter Yang

University of Pennsylvania
E-mail: weiyang@pennmedicine.upenn.edu

Abstract: Patients with Chronic Kidney Diseases (CKD) are closely monitored by repeatedly measuring their kidney biomarkers, e.g., estimated glomerular filtration rate (eGFR) and urine protein, over time. The progression of CKD is quite heterogeneous and often corresponds to different etiologies. The identification of different types of CKD progression and associated risk factors are of great interest in CKD patient care. In this project, we proposed latent class mixed effects models to jointly model the longitudinal trajectories of eGFR and urine protein; and identified different CKD progression types. Using Bayes rule, we classified patients in different subgroups and examined class-specific risk factors associated with the progression of CKD.