Modeling Cancer Progression Events in Genetic Association Studies

Dr. Yildiz Yilmaz
Memorial University of Newfoundland

Abstract

Analyses of disease-free survival data in some types of cancer studies indicate that cohorts of patients treated for cancer are mixtures of cured individuals and individuals susceptible to experience a cancer related event. Cured individuals do not experience any cancer related events, and eventually die due to other causes. Individuals who are not cured may die after experiencing a cancer recurrence or may die due to cancer without experiencing a recurrence. Cure status is partially latent. When time-to-first event is censored or the cause of observed death is masked, the cure status is unknown. To model disease progression events with possibly masked causes of death, we consider a semi-Markov multi-state model including partially latent cured and not cured states. I will discuss our proposed modeling approach and inference method that allow us to identify genetic markers associated with the risk of experiencing a disease related event and timing of disease events. This is a joint work with PhD candidate Yongho Lim and Dr. Candemir Cigsar.