Biomarker Guided Phase II Two-Stage Design for Targeted Therapy

Zheyu Wang

JHU
E-mail: wangzy@jhu.edu

Abstract: Successful development of targeted therapy often relies on appropriate sub population selection. Biomarker assessments are increasingly involved in such trials. Most of biomarker-guided designs assume that a biomarker cutoff value has been proposed. In practice however, biomarker development often lags behind therapeutic development and a cutoff value is often difficult to determine at trial planning stage. On the other hand, designs that allows for biomarker cutoff determination often consider a phase II/III setting where the sample size is larger. These designs also primarily aim to claim efficacy in the entire population. With the development of targeted therapy and the challenge in speedy development of associated biomarker, we expect more and more experimental drugs to be most beneficial only in subgroup of patients and this group is often unknown at the time of trial planning. A design that can properly select the subgroup and adequately power the test in this efficacy subgroup is desirable. In this talk, we discuss a two-stage design based on Bayesian decision-theoretic approach for this purpose. We also discuss the sample size allocation between both stages in this design.