Identifying the Population Responsive to EVT: Bayesian Modeling in the STEP Platform Trial

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Abstract
Pivotal trials have established endovascular therapy (EVT) as a safe and highly effective treatment for a relatively narrow range of acute ischemic stroke patients. The therapy is administered based on characteristics of the stroke such as location and severity (e.g. NIH stroke scale) and initial EVT studies targeted patients with stroke characteristics thought to maximize the observed benefit. There remains uncertainty about the full patient population who should receive the therapy and it is probable that patients outside this narrow range will also benefit. The StrokeNet Thrombectomy Endovascular Platform (STEP) trial is a platform trial designed to optimize care for acute ischemic stroke patients. The first research question in the platform trial will explore expanding the indication of EVT to patients with stroke characteristics outside of the established efficacy population.

The study will enroll patients with strokes that are not included in the current indication for EVT. The effect of EVT vs medical management will be modeled across baseline characteristics to determine where EVT is beneficial and where it is not beneficial. For this applied problem, Dr. Crawford will present a Bayesian modeling framework that searches the space of baseline stroke characteristics to find an appropriate population for indication expansion, if one exists. The research question is naturally answered in the Bayesian framework, incorporating prior knowledge of approvals for the therapy and knowledge of the biological process.