
OLGA SHESTAKOVSKA, Population Health Research Institute, McMaster University and Hamilton Health Sciences
Large Hazard Ratios Do Not Always Mean High Predictive Accuracy: A Simulation Study

In survival analysis, hazard ratio is a measure of relative risk frequently used to assess the effect of demographics, clinical characteristics, and biomarkers on event rates. We explore the relationship between hazard ratio and measures of predictive accuracy such as Harrell's c-statistic and time-dependent ROC curves in a simulation study. Motivation came from the analysis of a risk score calculated to predict stroke in patients with atrial fibrillation. We observed a strong association between the score and event rates (HR=2.45; 95% CI=1.66-3.75) yet the Harrell's c-statistic was 0.567.