Impact of the adjustment of stratification factors on time-to-event analyses

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Abstract

In a stratified clinical trial design with time to event end points, stratification factors are often accounted for the log-rank test and the Cox regression analyses. In this work, we have evaluated the impact of inclusion of stratification factors on the power of the stratified log-rank test and have compared the bias and standard error in HR estimate between multivariate and stratified Cox regression analyses through simulation. Results from our investigation suggests that both failing to consider stratification factor in presence of their prognostic effect and stratification with smaller number of events may substantially reduce the power of the log-rank test. Further, the HR estimate from the multivariate Cox analysis is more accurate and precise compared to the stratified Cox analysis. Our findings point towards the necessity of evaluating the impact of stratification factors on the time to event analyses at the time of study design which is presently not a norm.

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`Multivariate vs Stratified Cox - v5.pdf` available at https://authorea.com/users/345461/articles/471679-impact-of-the-adjustment-of-stratification-factors-on-time-to-event-analyses