

Joint Modelling For Bivariate Longitudinal and Survival Data: Application to Peritoneal Dialysis Programme

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Many follow-up studies produce different types of outcomes including both longitudinal measurements and time-to-event outcomes. Commonly, it is of interest to study the association between them. The joint modelling approaches of longitudinal and survival data have gained an increasing attention recently. Various authors have proposed joint modeling for a single longitudinal marker and a time-to-event process [Wulfsohn and Tsiatis (1997); Tsiatis and Davidian (2004); Henderson et al (2000)]. However, many studies collect several longitudinal biomarkers and the interest may be in the relationship between these biomarkers and the survival outcome. This paper presents a comparison of possible regression models like earlier methods and joint modelling approaches to study bivariate longitudinal and survival data for an end-stage renal disease progression study. Such study includes patients in a peritoneal dialysis program monitored with regular control visits where several clinical measurements are recorded such as serum albumin and calcium levels.

Keywords: Joint modelling, Longitudinal Data, Survival