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1. 연구목적

Recently, frailty models (an extension of Cox's proportional hazard models) have been widely used for the analysis of multivariate survival data, which could be caused, for example, by recurrent event times for the same subjects. For the inference the use of marginal likelihood usually requires a numerically intractable integration.

2. 연구방법

As an alterna-tive, Ha, Lee & Song (2001, 2002) have proposed the use of Lee & Nelder's (1996) hierarchical-likelihood (h-likelihood) for the analyses of both frailty models and mixed linear models with censoring, respec-tively; they showed that h-likelihood provides a simple unified frame-work

and a numerically efficient fitting algorithm for these models.

Furthermore, Ha & Lee (2002a) showed that frailty models can be fitted via Poisson HGLMs (hierarchical generalized linear models), lead-ing to the use of HGLM methods developed by Lee & Nelder (1996, 2001). Thus, this Poisson framework can be straightforwardly applied to fitting the extended frailty models with multi-component frailties or correlated frailties (Ha & Lee, 2002b), and the joint models for the com-bined analysis of repeated measures data and event history data (Ha, Park & Lee, 2002). However, the previous works have been focused on the inference of an alternative survival model for the data, so that it is required to se-lect a succinct model which appear to describe the information in the data adequately.

3. 연구결과

In this presentation, we introduce how to select a bet-ter model among various frailty models using the HGLM methods. The new method is illustrated using a data set on chronic granulomatous disease(CGD, Fleming & Harrington, 1991), which shows inter-recurrence (gap) times of patients from different hospitals.