| 제 목 | 국문 | 집락자료의 동시모형 |
| | 영문 | Joint Analysis of Cluster Data |

| 저 자 및 소 속 | 국문 | 윤성철[1], 이무송[2], 강위창[3], 하일도[4], 이영조[1]
 1) 서울대학교 통계학과, 2) 울산대학교 의과대학 예방의학교실,
 3) 대전대학교 정보통계학과, 4) 경산대학교 통계학과 |
| | 영문 | Sungcheol Yun[1], Mo-Song Lee[2], Weechang Kang[3],
 Il-Do Ha[4], Youngjo Lee[·)
 1) Department of Statistic, Seoul National University, 2) Department of
 Preventive Medicine, University of Ulsan College of Medicine,
 3) Department of Information and Statisics, Daejeon University,
 4) Department of Statistic, Kyungsan University |

| 분 야 | 역 학 기타 | 발 표 자 | 윤성철 | 발표형식 | 구 연 |
| | | | 일반회원 | | |

| 진행상황 | 연구완료 |

1. 연구목적

The goal of the analysis was to study the joint effects of ethylene glycol dose on fetal weight and on the probability of malformation

2. 연구방법

Price et al. (1985) presented data from a study on the developmental toxicity, ethylene glycol (EG), in mice.

- The experimet assigned pregnant mice randomly to four group during major organogenesis.

- Following sacrifice, measurements were taken on each fetus in the uterus.
- The two outcome measures on each live fetus were fetal weight and whether was malformed.

3. 연구결과

Table 1 summarizes the malformation (binary response) and fetal weight (continuous response) outcomes for the experiment and shows clear dose-related trends with respect to both outcomes. The rates of fetal malformation increase with dose, ranging from 0.3% in the control group to 57% in the highest dose (3g/kg/day) group. Fetal weight decreases with increasing dose, with the average weight ranging

from 0.972g in the control group to 0.704g in the highest dose group.

Table 1

Malformations Weight(g)

Dose(g/kg) Dams Live No. % Mean S.D

0.00 25 297 1 (0.34) 0.972 (0.0976)
0.75 24 276 26 (9.42) 0.877 (0.1041)
1.50 22 229 89 (38.86) 0.764 (0.1066)
3.00 23 226 129 (57.08) 0.704 (0.1238)

For the correlation of outcomes, it has a deviance difference of 11.5 with one degrees of freedom, supporting non-null correlation (p<0.05). This negative correlation between bivariate random effects indicates that high fetal malformation frequencies are associated with lower fetal weights.

4. 고찰