RESEARCH/PROJECT NAME: Variability in drug exposure in special populations

PRESENTER: Angela K. Birnbaum, Ilo E. Leppik, Sai P Bathena, Lynn E. Eberly

BACKGROUND: Drug exposure can be more variable in certain populations such as the elderly (especially in the elderly who reside in nursing homes) and pregnant women compared to adult patients. Our group studies the pharmacokinetics of antiepilepsy medications in special populations of epilepsy patients. Currently our research laboratory is participating in studies involving elderly nursing home patients and pregnant women.

OBJECTIVE: To present an overview of current projects including data from studies in elderly nursing home patients.

DESIGN: In order to further determine the extent of epilepsy in the elderly nursing home population we examined the first (baseline) Minimum Data Set (MDS) for all residents who were 65+ years or older (N=1,186,579), of all Medicare/Medicaid certified US NHs during 2007 for an indication of epi/sz. In order to determine the variability in drug concentrations in elderly nursing home residents we created a nursing home network consisting of seven Twin Cities nursing homes and conducted a prospective study in elderly nursing home patients (≥ 60 years). Patients were recruited into the study if they were receiving gabapentin, phenytoin, lamotrigine, or levetiracetam. The study included the collection of blood samples and outcome information over four visits at a stable dose of study drug.

CONCLUSION: Nationally, approximately eight percent of the elderly individuals residing in a nursing home had an indication for epil/sz. In a smaller, local subset of nursing homes the concentrations of several epilepsy medications fluctuate in some elderly epilepsy patients, but not others. Future analyses will examine outcome information and pharmacokinetic factors that may effect changes in drug concentrations in particular individuals.

The nursing home studies were funded by ASPH/CDC #S-3822 and NIH NIA-R01AG026390.