CARDIOVASCULAR DISORDERS – Clinical Outcomes Studies

PCV1
APPLICATION OF LOGISTIC REGRESSION FOR SIGNAL DETECTION AND RISK ASSESSMENT OF MACROLIDE-ASSOCIATED TORSADE DE POINTES

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OBJECTIVES: Torsade de pointes (TdP) is an identified risk for antibacterial treatment with macrolides, but the risk might vary across individual macrolides. This study evaluates the association between macrolides and TdP from the FDA Adverse Event Reporting System (FAERS). **METHODS:** Disproportionality analysis of FAERS between 1997 and 2012 was conducted for azithromycin, clarithromycin, erythromycin and Telithromycin with TdP preferred term of the Medical Dictionary for Regulatory Activities using logistic regression. Logistic reporting odds ratio (LROR) and corresponding 95% confidence intervals (CIs; LR05-LR95) are estimated for individual macrolides. Estimates are compared with Multi-Item Gamma Poisson Shrinker data mining algorithm. Estimates ≥2 yield significant safety signals. Lack of overlap between estimate-specific CIs indicates efficient approach for signal detection. **RESULTS:** A total of 318 TdP events were reported for macrolides. The majority of reports were for erythromycin (n=122) and clarithromycin (n=114), followed by azithromycin (n=74) and telithromycin (n=8). Most of events were reported for females with median age of 62.8 years. 98% of TdP were serious events (10% of those were deaths). Death contributed to 18%, 10% and 5% of serious TdP events for azithromycin, erythromycin and clarithromycin, respectively. Telithromycin didn't have death TdP reports. Significant TdP signals were identified for macrolides. LROR (LR05-LR95) were: erythromycin 48.1 (40.4-55.9); clarithromycin 15.3 (12.1-19.1); azithromycin 13.9 (11.1-17.2); and telithromycin 6.79 (3.20-13.5). Except for telithromycin, no overlap was observed between estimate-specific CIs between analysis methods. **CONCLUSIONS:** Macrolides are associated with more than expected reporting of TdP compared to other drugs and events in the database; however, the risk was highest in erythromycin and lowest in telithromycin. Fatal TdP was highest in azithromycin, and telithromycin didn't have fatal TdP. The findings show differential risk of TdP across macrolide antibiotics, emphasizing the need for monitoring cardiac rhythms in patients treated with macrolides.