Sustainability and Outcomes of a Standardized Aminoglycoside Induced Ototoxicity Monitoring Algorithm

Claire Elson  
*Children's Mercy Hospital,* ecelson@cmh.edu

Christopher M. Oermann  
*Children's Mercy Hospital,* cmoermann@cmh.edu

Michelle Weltman  
*Children's Mercy Hospital,* mlweltman@cmh.edu

Ellen Meier  
*Children's Mercy Hospital,* emmeier@cmh.edu

Follow this and additional works at: [https://scholarlyexchange.childrensmercy.org/posters](https://scholarlyexchange.childrensmercy.org/posters)

Part of the Congenital, Hereditary, and Neonatal Diseases and Abnormalities Commons, Infectious Disease Commons, Otolaryngology Commons, Pediatrics Commons, Pharmaceutical Preparations Commons, Pulmonology Commons, and the Respiratory Tract Diseases Commons

**Recommended Citation**

Elson, Claire; Oermann, Christopher M.; Weltman, Michelle; and Meier, Ellen, "Sustainability and Outcomes of a Standardized Aminoglycoside Induced Ototoxicity Monitoring Algorithm" (2018). *Posters.* 43.

[https://scholarlyexchange.childrensmercy.org/posters/43](https://scholarlyexchange.childrensmercy.org/posters/43)

This Poster is brought to you for free and open access by SHARE @ Children's Mercy. It has been accepted for inclusion in Posters by an authorized administrator of SHARE @ Children's Mercy. For more information, please contact library@cmh.edu.
Aminoglycoside (AG) antibiotics are essential for the treatment of cystic fibrosis (CF) lung infections. Monitoring is critical secondary to potential nephrotoxicity and ototoxicity. Children’s Mercy – Kansas City (CMKC) – Standardized nephrotoxicity monitoring – Variable ototoxicity monitoring practices

Prevalence of ototoxicity
- 2016 CFF Patient Registry
  - 1.1% pediatric patients (<18 years)
  - 2.2% overall population
- National Institute of Deafness and Other Communication Disorders
  - 13% total US population ≥12 years old

A standardized AG induced ototoxicity monitoring algorithm (AIOA) was developed and implemented at CMKC in 2017.

Methods
- Pre-Implementation
  - Provider Survey
  - Retrospective Chart Review
  - Observational Cohort Analysis
  - Review of Published Literature
- AIOA implementation: 1/1/2017
- Eligible patients identified during pre-clinic huddles and hospitalizations by PharmD and CF Center Coordinator
- Monthly retrospective review of AG prescriptions and inpatient AG orders
- Database developed to track audiograms, therapy modifications, and adherence to algorithm
- Data collected through: 6/30/2018

AIO Algorithm

Conclusions
- Implementation of an AIOA increased the frequency of audiograms obtained among patients treated with IV and INH AG.
- The prevalence of hearing abnormalities at CMKC is higher than that reported in the CFF Patient Registry as well as the overall US population.
- In 51 audiograms obtained over 18 months, 28 (55%) had some degree of abnormality in either distortion product otoacoustic emissions or varying degrees of high frequency hearing loss. Among the patients with abnormalities, an intervention was made in 7 (25%) patients.
- The frequent use of AG among CF patients and the probability of AG induced hearing loss suggest a need to establish an AIOA nationally.

The authors have no relevant disclosures.