

PRESENTING AUTHOR'S NAME & RESEARCH TITLE**Danny Xu, PhD & Gabriel Bargaen, PhD, CCC-A/SLP**

Esomeprazole otoprotection against cisplatin-induced hearing loss in cancer patients

PURPOSE/BACKGROUND

Cisplatin is a first-line chemotherapy prescribed to many cancer patients with solid tumor. However, cisplatin is also the most ototoxic medication causing permanent hearing loss among more than 80% treated patients. There are no FDA-approved therapies to prevent and protect cisplatin-induced hearing loss, which remains a significant life-altering medical challenge among cancer patients. This project aims to address this unmet medical need by investigating whether esomeprazole(ESO), a safe over-the-counter medication for acid reflux, offers protective effect to mitigate cisplatin-induced hearing loss.

MATERIALS & METHODS

Retrospective cohort studies using the cross-sectional FDA Adverse Event Reporting System (FAERS) and longitudinal PharMetrics medical claims databased have been carried out to measure the change of hearing loss risk level between the cisplatin control cohort and the cisplatin ESO concomitant use cohort. In addition, a pilot prospective human subject study has been attempted to evaluate changes in hearing ability of participants taking ESO prior to and during cisplatin treatment compared to those receiving cisplatin treatment only over a 9-months period.

RESULTS

Our FAERS results show that ESO significantly reduces the hearing loss risks among cancer patients, which is corroborated by the logistic regression results obtained from the PharMetrics data. Using %hearing loss free survival as the metric, further analyses of the PharMetrics data using the Cox proportional hazards and Kaplan-Meier survival models reveal that > 80 DDD ESO dosing is required for hearing loss protective effect and the best ESO doing time window is before or after cisplatin treatment. The pilot prospective human subject study results are still pending at this point.

DISCUSSION/CONCLUSION

Our retrospective cohort studies determined that ESO does offer tangible protection against cisplatin-induced hearing loss when patients have a cumulative dose of > 80DDD taken either before or after cisplatin treatment. The human subject study data will validate the findings when it becomes available.