42. CISPLATIN OTOTOXICITY: EVIDENCE FOR DOSING EFFECT ON THE RISK OF HEARING SHIFTS AMONG HEAD AND NECK CANCER PATIENTS RECEIVING CHEMORADIATION

Maggiore RJ[1]; Bennett KO[2]; Konrad-Martin D[2]; McMillan GP[2]; Lyle SW[3]; Rana SR[4]; Dille M[2]
[1] University of Rochester, Rochester, NY; [2] National Center for Rehabilitative Auditory Research (NCRAR), VA Portland Health Care System (VAPORHCS), Portland, OR; [3] VA Portland Health Care System, (VAPORHCS), Portland, OR; [4] Oregon Health & Science University (OHSU), Portland, OR

PURPOSE: To characterize the effect of cisplatin dosing (bolus vs. weekly) on the risk of ototoxicity in a sample of veterans undergoing chemoradiation therapy for locally advanced head and neck cancer with cisplatin.

BACKGROUND: Between 2008 and 2014, 17,173 Veterans were treated with cisplatin-based chemotherapy. Many began treatment with pre-existing hearing loss and up to half likely sustained ototoxicity. Minor shifts in hearing, left untreated, can constrain effective provider-veteran treatment partnerships, family and workplace communication, and limit quality of life. A better understanding of the risk factors and clinical presentation of ototoxicity is needed to inform ototoxicity monitoring programs and treatment decisions.

METHODS: Data were examined in N=21 head and neck cancer patients receiving concurrent chemoradiation therapy with cisplatin for whom audiometry data had been obtained prior to treatment and at one or more timepoints (35 days and 165 days) following the initial treatment. Data were gathered as part of a larger prospective study on ototoxicity monitoring at the VA Portland HCS from 2014 to 2017. The primary outcome was a shift in the audiogram based on the NCI Common Terminology Criteria for Adverse Events (CTCAE) Grades 1 or greater, which was evaluated in relation to cisplatin dosing ($\geq$75mg/m2 every 3 weeks ("bolus") vs. weekly dosing $\leq$40mg/m2). Effects of dosing on the risk of CTCAE Grade 1 or greater ototoxic event were estimated using Bayesian analysis. Descriptive statistics characterize additional factors (age, pre-existing hearing loss and ototoxic hearing shifts, cisplatin cumulative dose, radiation dose).

RESULTS: Ototoxicity meeting CTCAE grade 1 was found at a rate of 23.8%. The estimated risk of ototoxicity did not vary by hearing monitoring method. Veterans receiving bolus-dose cisplatin chemoradiation are estimated to be at double the risk of ototoxicity than those receiving lower weekly dosing.

IMPLICATIONS: Evidence supports the view that CTCAE Grade 1 or higher ototoxicity was associated with cisplatin dosing in this sample. High-dose regimens are more likely to cause ototoxicity and this increased risk does not appear to vary based on method of delivery of ototoxicity monitoring. Effects of cisplatin cumulative dose and radiation dose, as well as implications for ototoxicity monitoring, will be discussed.