Ototoxicity: Overview of Relevant Publications

Publication	Key points	Applications
Accuracy of distortion-product otoacoustic emission-based ototoxicity monitoring using various primary frequency step-sizes	Using 1/24th octave shifts in DPOAE testing is faster and still comparably accurate compared to 1/48th octave shifts	New protocol for OM Cut total testing time in half
Development and validation of a cisplatin dose-ototoxicity model	Create a pretreatment risk probability curve for ototoxicity Cumulative cisplatin doses and pre-exposure are significant factors increasing risk of hearing shifts	Pretreatment analysis and modelling Identifying risk factors
Multivariate DPOAE metrics for identifying changes in hearing: Perspectives from ototoxicity monitoring	Exploring the relationship between DPOAE changes, hearing shifts and risk factors	
Ototoxicity monitoring: Program approaches and considerations (abstract only)	Risks and consequences of ototoxic hearing loss	Early detection and hearing monitoring Implementing an OM program
Evaluation of audiometric threshold shift criteria for ototoxicity monitoring	Patients receiving cisplatin treatments showed an averaged 10.5 dB shift in hearing compared to no significant threshold shifts for those with non-ototoxic treatments. Use of smaller frequency steps in monitoring improved test performance for threshold shifts.	Ototoxicity monitoring using an individualized, one-octave range of frequencies tested in ⅙-octave steps is quick to administer and has an acceptable False Positive rate.
Tinnitus onset rates from chemotherapeutic agents and ototoxic antibiotics: Results of a large prospective study	Patients exposed to ototoxic medications are shown to be at far greater risk for developing or worsening tinnitus. Cisplatin and Carboplatin were found to be the most potent	Attention to symptoms of tinnitus within an ototoxic monitoring protocol is essential. Further counseling and audiological resources should be provided regarding tinnitus onset.

	agents for ototoxic tinnitus development.	
Ototoxicity risk assessment combining distortion product otoacoustic emissions with a cisplatin dose model	A patient's ability to take behavioral hearing tests during cisplatin treatment is subject to change. Applying DPOAE measurements to a statistical modeling incorporating pre-treatment hearing and cisplatin dosage has proven effective for ototoxicity predictions.	Utilizing this model, ototoxic related hearing changes can be determined based on any observed change in DPOAE level.
Distortion product otoacoustic emission test performance for ototoxicity monitoring	DPOAEs can identify when ototoxic side effects cause changes in hearing function when measuring at the highest DPOAE test frequency with a robust response. At higher cisplatin doses, ears with better baseline hearing are more sensitive to ototoxic hearing changes than those beginning with poorer hearing.	DPOAEs are a quick and easy measurement to help identify whether or not hearing has changed due to cisplatin treatment.
Vestibulotoxicity: strategies for clinical diagnosis and rehabilitation	Aminoglycosides are commonly prescribed medications with ototoxic side effects. Data from patients exposed to aminoglycosides show high prevalence of vestibular ototoxicity and balance related problems.	The assessment of vestibular function in an ototoxicity monitoring program is essential.
Factors affecting sensitivity of distortion-product otoacoustic emissions to ototoxic hearing loss. Ear and Hearing	DPOAE is less sensitive to damage than behavioral testing DPOAE sensitivity is unrelated to the type of chemotherapy used	A more reliable way of testing

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	Post-exposure thresholds of the patient affected the sensitivity of the DPOAE A successful way to monitor ototoxicity is with the use of DPOAE f2 frequencies with relation to highest behavioral test frequencies	
Audiological Monitoring of Patients Receiving Ototoxic Drugs	Aminoglycoside antibiotics, platinum-based chemotherapy agents and some loop diuretics cause ototoxicity Identifying at risk patients - those with high dosage/ other risk factors Includes goal of OM	Can be used to identify at risk patients
Objective measures of ototoxicity	2 promising objectives that offer the ability to monitor and detect hearing changes - ABRs and OAEs Detection of hearing changes at frequencies >8kHz provides valuable information	More productive ways in which to monitor ototoxicity
An efficient test protocol for identification of a limited, sensitive frequency test range for early detection of ototoxicity	Rapidly identify patients SRO in highest frequency Allowed for an accurate method to test for early signs of ototoxicity with high frequencies	More efficient protocol for hearing tests Allow for more patients in the OM program