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High incidence of cisplatin-induced ototoxicity in pediatrics in Johannesburg, South Africa

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Cisplatin, a highly effective chemotherapy associated with high incidences of ototoxicity. This cross-sectional retrospective study documents the incidence of cisplatin-induced ototoxicity in pediatrics utilizing data obtained during ototoxicity monitoring of a total of 196 pediatric patients who underwent cisplatin chemotherapy in Johannesburg, South Africa, between January 2015 and December 2016, through conventional audiometry, extended high frequency audiometry and distortion product otoacoustic emissions (DPOAEs). Descriptive and inferential statistics were used for data analysis. Twelve percent (12%) of the participants did not develop ototoxicity during treatment. Eighty-four percent (84%) of the participants developed hearing loss of varying degrees during treatment. Additionally, 4% presented with delayed onset of hearing loss detected at 6-weeks post-treatment. While 60% of participants presented with profound SNHL, 12% had a moderate to severe high frequency sensorineural hearing loss and 12% had a SIOP grade-4 ototoxic shift in the extended high frequency range. Diminished DPOAEs were observed in 92% of the participants. Only 66% of the participants were diagnosed with ototoxicity using conventional audiometry. Three percent (3%) of the participants presented with mixed hearing loss while 4% had conductive hearing loss. In addition, 78% of the participants presented with chronic cerumen impaction throughout the course of chemotherapy. High pitched tinnitus was reported in 56% of the participants. This study highlights a high incidence of cisplatin-induced ototoxicity in pediatrics and thus recommends prospective studies in oto-protection to prevent the negative impacts of cisplatin-induced hearing loss in pediatrics.

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