Cisplatin induced acute multi-organ toxicities in a hypo-pharyngeal cancer

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Introduction: Cisplatin is a highly effective platinum based direct DNA-interacting drug to treat various types of cancers, but it also has many dose-dependent toxicities including renal toxicity and ototoxicity. We describe a case of reversible cisplatin induced acute nephrotoxicity and ototoxicity following only one cycle of chemotherapy in a hypopharyngeal cancer patient.

Case: A 50-year-old woman presented with hoarseness lasting 5days and a 5months history of palpable neck mass. She was diagnosed hypopharyngeal cancer involving several lymph nodes and both thyroid glands and biopsy from the hypopharynx showed squamous cell carcinoma. The clinical staging was T4aN3M0. We decided to give a concurrent chemoradiotherapy(CCRT) with cisplatin and baseline blood tests was normal. She received 127mg(100mg/m²) of cisplatin on the 1st day. One week later, she visited the emergency room due to tinnitus and hearing loss developed immediately after chemotherapy, she showed decreased urine output with increased serum creatinine level(8.56mg/dL). Acute renal toxicity was grade 4 and hemodialysis was performed. After 4 times of intermittent hemodialysis, serum creatinine level has decreased to 0.87mg/dL(33rd day of CCRT). Pure tone audiometry which was performed at the 9th day of CCRT showed progression of bilateral mixed hearing loss compared to baseline audiogram before CCRT(Figure1A,1B). After administration of high dose steroid(prednisone 1mg/kg/day) and intratympanic steroid injection, 4 frequency average pure tone threshold has improved 65 to 32dB at right, 67 to 32dB at left with residual sensorineural hearing loss above 1.5 kHz(Figure1B,1C).For the next treatment, we switched from cisplatin to cetuximab. She received of CCRT with weekly cetuximab and achieved partial remission.

Conclusion: In general, toxic effects of cisplatin are cumulative and dose dependent. We encountered a rare case of adverse events following administration of only single dose of cisplatin. The monitoring of toxicity is important in the use of cisplatin, and it is necessary to conduct further research on the precise mechanism that causes the toxic effect of cisplatin and how to prevent them

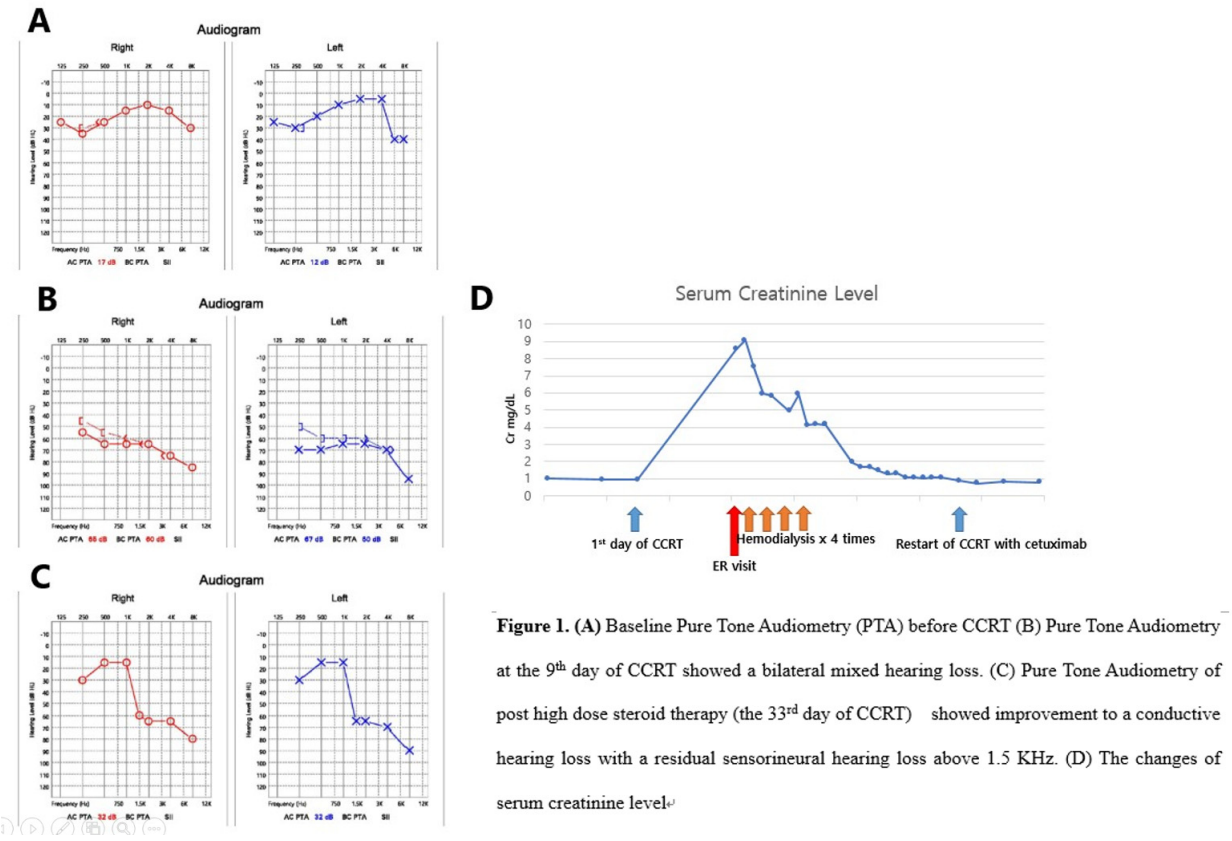

Figure 1. (A) Baseline Pure Tone Audiometry (PTA) before CCRT (B) Pure Tone Audiometry at the 9th day of CCRT showed a bilateral mixed hearing loss. (C) Pure Tone Audiometry of post high dose steroid therapy (the 33rd day of CCRT) showed improvement to a conductive hearing loss with a residual sensorineural hearing loss above 1.5 KHz. (D) The changes of serum creatinine level