Abstract

Cisplatin is a platinum-based chemotherapy which use as a treatment of many solid tumor ex. neuroblastoma, germ cell tumor, osteosarcoma, hepatoblastoma. Cisplatin has been found ototoxicity as bilateral sensorineural hearing loss which is irreversible. The mechanism of action is activation of apoptosis cascade and generate reactive oxygen species leads to cellular toxicity which occurs in normal tissue also. The incidence of these toxicity is varying in number due to the protocols, races, genetic polymorphism etc.

Retrospective study includes 47 patients, age 0-15 years, diagnosed neuroblastoma, hepatoblastoma, osteosarcoma, germ cell tumor (CNS, non-CNS) since 2007-2019 at Siriraj hospital. All were receiving cisplatin in protocol and monitoring audiogram or auditory steady-state response (ASSR) as hearing impaired. Aims are to find out the incidence and what are risk factors which enhance ototoxicity of cisplatin.

The result, we found that there are hearing impaired patients, 31/47 of cases detected by audiogram at the end of treatment. Severity and range of frequency shift are associated with cumulative cisplatin doses (mg/m2). At cumulative cisplatin dose above 450 mg/m2 significantly increase risk of hearing loss. Cyclophosphamide and infection during the course also increased risk of hearing impairment. Following up to median time at 35.5 months in 14 patients, late onset of hearing loss was found in a survive patient at 8 months after treatment which irreversible.

Keywords: cisplatin, ototoxicity, pediatric, oncology, long-term