Ototoxicity in some Cancer Patients

Kiril Tenev, Mariyana Hristova*

Department of ENT Oncology, Department of Oncology, KOC Stara Zagora, Bulgaria etc.

Resume

To review the outcome in cancer patients who was treated with Cisplatin and other ototoxicity drugs in 6 months period in Oncology Department, KOC Stara Zagora.

This study suggests that there is a correlation between increase of the Sensorineural hearing loss and combination of Cisplatin and other groups of drugs by some treatment cancer patients.

Key words: Sensorineural hearing loss, vertigo, tinnitus

Introduction

Otologic side effects of anticancer drugs are more common than people imagine.

Cisplatin is a chemotherapeutic alkylating agent effective in the treatment of various malignant tumors – lung, breast, cervical, ovarian, bladder, testicular, prostate, gastrointestinal cancers, squamous cell cancers of the head and neck cancers. However, Cisplatin therapy is limited by cellular resistance and severe side-effects in normal tissues. These side-effects include neurotoxicity and ototoxicity. /2/

Hearing loss, tinnitus and vertigo are very often side effects in oncology patients who are treated with Cisplatin in combinations with other drugs – antibiotics, analgesics, other anticancer drugs, cardiovascular drugs or neurologic drugs. Sensorineural Hearing loss – the hearing of high-frequency sounds – 4000 – 8000 Hz /1/ – is commonly affected.

Methods

Before starting the Cisplatin therapy we investigated the hearing capabilities of the patients in this group. We observed 34 patients from 03.2018 to 10.2018, who were treated with Cisplatin combined with other drugs in Oncology Department KOC Stara Zagora. The patients were 18 males and 16 females aged from 30 to 76 years. We provided Otoscopy, Pure tone audiometry before Cisplatin therapy.

The inclusion criteria were:

1. Cancer patients who were planned for Cisplatin (over 50 mg/m²) in combination with other drugs;
2. Oncology patients with normal hearing.

The exclusion criteria were:

Oncology patients with abnormal hearing before treatment

Male N (0/o)	Female N (0/o)	Age group
4 (11.8)	4(11.8)	30–40
2 (5.9)	3 (8.8)	41–50
5 (14.7)	3 (8.8)	51–60
7 (20.6)	6 (17.6)	60-

Aim

We tried to systemize the most common groups of drugs that increase hearing loss in combination with Cisplatin.

Results

Testing the hearing of high frequencies between 125 – 8000 Hz showed that Ototoxic synergism occurred in 70 % of our patients.

Discussion

Doctors should be familiar with the common side effects of some anticancer drugs that they usually use with combination with others ototoxic drugs. We recommend examining such patients with weekly pure tone audiometry during the period of treatment. We recommend protection of SNHL with Flunarizine and Betahistine dihydrochloride

Conclusion

- Cisplatin is a widely used anticancer drug which causes irreversible hearing loss /3/.
- It is very important to discuss the treatment of patients presenting for the first time with otologic symptoms.

Over 60% of Cisplatin-treated patients develop irreversible sensorineural hearing loss. Our results with the patients who were treated with Cisplatin combined with drugs of other groups showed an increased risk of sensorineural hearing loss and Tinnitus. Out of 34 oncology patients, 30 had bilateral sensorineural hearing loss.

Table 1. Cisplatin combined with some drugs causing Sensorineural hearing loss as a side effect.

Total	Class of drug	Separated	Name	Dose	Duration
Anticancer drugs	Cytotoxic	Vinca alkaloids V	incristin		7 days
Analgetics		Non – steroidal	Diclofenac, Ibuprofen	2x75 mg	10 days
Cardiovascular drugs		ACE inhibitor Beta blockers	Enalapril Sotalol	20 mg 1x80 mg	More 30 days
Psychiatric drugs	Antidepressant	SSRI Benzodiazepine	Citalopram Diazepam		More 30 days
Anti infective	Antibiotics	Aminoglycosides Macrolides	Gentamycin Azitromycin	2x80 mg 1x500 mg	7 days 5 days
Metabolic		Statins	Simvastatin	1x20 mg	More 30 days

Table 2. Otoneurologic side effects

Symptoms	SNHL	Tinnitus	Ear pain	Vertigo	Vomitus	Nausea	Degree
Right ear	1						60 dB
Left ear		2	2				54 dB
Bilatera	30	26					56 dB
Total	31	28	2	20	30	25	

References

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