

Cisplatin and Radiotherapy

Indication

Chemo-radiation for head and neck cancers.

ICD-10 codes

Codes prefixed with C00-C13

Regimen details

Day	Drug	Dose	Route
1	Cisplatin	40 mg/m ² (max dose 80mg)	IV infusion

Cycle frequency

7 days

Number of cycles

Maximum of 7 cycles.

Administration

Cisplatin is administered in 500mL sodium chloride 0.9% over 1 hour following the pre and post hydration protocol below.

Infusion Fluid & Additives	Volume	Infusion Time
Sodium Chloride 0.9%	1000mL	1 hour
Mannitol 20%	200mL	30 minutes
OR		
Mannitol 10%	400mL	30 minutes
<i>Ensure urine output > 100mL / hour prior to giving cisplatin. Give a single dose of furosemide 20mg iv if necessary.</i>		
Cisplatin	500mL	1 hour
Sodium Chloride 0.9% + 2g MgSO ₄ + 20mmol KCl	1000mL	2 hours
TOTAL	2700mL or 2900mL	4 hours 30 minutes

Patients with low magnesium levels (<0.7 mmol/L) should have an additional 2g magnesium sulphate added to the pre-hydration bag.

An accurate fluid balance record must be kept.

All patients must be advised to drink at least 2 litres of fluid over the following 24 hours.

Pre-medication

Pre-hydration as above.

Emetogenicity

This regimen has moderate emetogenic potential.

Additional supportive medication

If magnesium levels are consistently low, consider supplementation with oral magnesium. For example magnesium glycerophosphate [Note: unlicensed product] 24 mmol Mg²⁺ per day in divided doses or as per local magnesium replacement guidelines.

Extravasation

Cisplatin is an exfoliant (Group 4)

Pre-treatment evaluation

Investigation	Validity period (or as per local policy)
FBC	14 days
U+E (including creatinine)	14 days
LFT	14 days
Magnesium	14 days

Regular investigations

Investigation	Validity period (or as per local policy)
FBC	72 hours
U+E (including creatinine)	72 hours
LFT	72 hours
Magnesium	72 hours

Standard limits for administration to go ahead

If blood results not within range, authorisation to administer **must** be given by prescriber/ consultant

Investigation	Limit
Neutrophils	$\geq 1.5 \times 10^9/L$
Platelets	$\geq 100 \times 10^9/L$
Haemoglobin (Hb)	$\geq 10 \text{ x g/dL}$ (If Hb < 11.5 g/dL a 2 unit blood transfusion should be arranged)
Creatinine clearance (CrCl)	$\geq 60 \text{ mL/min}$
Bilirubin	$< 1.5 \text{ x ULN}$
Magnesium	$\geq 0.7 \text{ mmol/L}$

Dose modifications

- Haematological toxicity**

Defer treatment for 1 week if neutrophils $< 1.5 \times 10^9/L$ and/or platelets $< 100 \times 10^9/L$

- Renal impairment**

CrCl (mL/min)	Cisplatin Dose
≥ 60	100%
50-59	Discuss with consultant
< 50	Omit

- **Hepatic impairment**

No dose reduction necessary.

- **Other toxicities**

Toxicity	Definition	Dose adjustment
Neurotoxicity	Grade 2	Discuss with consultant
	Grade 3-4	Discontinue
Ototoxicity	Grade 2	Discuss with consultant
	Grade 3-4	Discontinue

Adverse effects - for full details consult product literature/ reference texts

- **Serious side effects**

Myelosuppression
 Nephrotoxicity
 Ototoxicity
 Allergic reactions

- **Frequently occurring side effects**

Nausea/vomiting
 Myelosuppression
 Constipation
 Peripheral neuropathy
 Alopecia
 Fatigue
 Electrolyte disturbances
 Taste disturbance

Significant drug interactions – for full details consult product literature/ reference texts

Allopurinol, colchicine, probenecid, sulfinpyrazone: increase serum uric acid concentration.

Cephalosporins, aminoglycosides, amphotericin B: increase nephrotoxic and ototoxic effects of cisplatin when administered simultaneously or 1-2 weeks after treatment with cisplatin.

Ciclosporin: excessive immunosuppression, with risk of lymphoproliferation.

Cyclizine, phenothiazines: may mask ototoxicity symptoms.

Furosemide, hydralazine, diazoxide, propranolol: intensify nephrotoxicity .

Oral anticoagulants: require an increased frequency of the INR monitoring.

Penicillamine: may diminish the effectiveness of cisplatin.

Phenytoin: reduced serum levels of phenytoin (due to reduced absorption and/or increased metabolism) can reduce epilepsy control. Monitor phenytoin levels.

Additional comments

Nil

References

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- Summary of Product Characteristics Cisplatin (Hospira) accessed 23/4/14 via www.medicines.org.uk
- Allwood M, Stanley A, Wright P, editors. The cytotoxics handbook. 4th ed. Radcliffe Medical Press. 2002.

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