Weekly Cisplatin and Radiotherapy (Head & Neck)

Indication
Chemo-radiation for head and neck cancers with radical intent.

ICD-10 codes
Codes prefixed with C00-C13

Regimen details

Day	Drug	Dose	Route
1	Cisplatin	40 mg/m² (max dose 80mg)	IV infusion

Cycle frequency
7 days

Number of cycles
Maximum of 7 cycles concurrent with radiotherapy from day 1.

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% **OR** Mannitol 10%	200mL 400mL	30 minutes 30 minutes
Ensure urine output > 100mL / hour prior to giving cisplatin. Give a single dose of furosemide 20mg iv if necessary.		
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 (or deliver via gastrostomy tube) 3 litres of fluid daily over the following 96 hours.

Pre-medication
Pre-hydration as above.

Emetogenicity
This regimen has moderate and delayed emetogenic potential. Antiemetics as per local policy. Patients often require extension of routine antiemetics to 5 days post chemotherapy.

Additional supportive medication
If magnesium levels are consistently low, consider supplementation with oral magnesium 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 – Assessed weekly for duration of RT

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	≥ 1.0 x 10^9/L
Platelets	≥ 100 x 10^9/L
Haemoglobin (Hb)	If < 90 g/L arrange a 1-2 unit transfusion if >/= 5 fractions RT remain. Continue Radiotherapy.
Creatinine clearance (CrCl)	≥ 60 mL/min
Bilirubin	< 1.5 x ULN

Dose modifications

- **Haematological toxicity**

Defer treatment for 1 week if neutrophils <1.0 x 10^9/L and/or platelets < 100 x 10^9/L

- **Renal impairment**

CrCl (mL/min)	**Cisplatin Dose**
≥60	100%
50-59	Discuss with consultant
25-50	Omit Cisplatin. Consider switching to weekly Carboplatin AUC 2

- **Hepatic impairment**

No dose reduction necessary.

- **Other toxicities**

Toxicity	Definition	Dose adjustment
Neurotoxicity	Grade 2	Discuss with consultant
	Grade 3-4	Discuss with consultant. Discontinue chemotherapy or switch to weekly Carboplatin AUC 2
Ototoxicity	Grade 2	Discuss with consultant
	Grade 3-4	Discuss with consultant. Discontinue chemotherapy or switch to weekly Carboplatin AUC 2

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
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

- Pignon JP, Bourhis. J, Domenge C, Designé L, on behalf of the MACH-NC Collaborative Group. Chemotherapy added to locoregional treatment for head and neck squamous-cell carcinoma: three meta-analyses of updated individual data. The Lancet, Volume 355, Issue 9208 Pages 949 - 955, 18 March 2000.
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- Summary of Product Characteristics Cisplatin (Hospira) accessed 3 November 2022 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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