Chemotherapy Protocol

LUNG CANCER – NON-SMALL CELL (NSCLC)

CISPLATIN-GEMCITABINE

Regimen

- NSCLC – Cisplatin-Gemcitabine

Indication

- Non-small cell lung cancer (in particular non-adenocarcinoma)
- Thymic carcinoma (in particular squamous cell)
- WHO Performance status 0, 1
- Palliative intent

Toxicity

Drug	Adverse Effect
Cisplatin	Neuropathy, nephrotoxicity, ototoxicity
Gemcitabine	Diarrhoea, constipation, rash, respiratory problems (pneumonitis), influenza like symptoms, radiosensitising, transient elevation of LFTs

The adverse effects listed are not exhaustive. Please refer to the relevant Summary of Product Characteristics for full details.

Monitoring

Disease

- A baseline chest x-ray should be performed before starting treatment and up to date (ideally within 1 month) cross section imaging should also be performed

Regimen

- FBC, LFTs and U&Es before each cycle (consider formally measuring GFR prior to treatment with cisplatin)
- A chest x-ray should be performed before each cycle
- Consider formal audiology test if relevant

Dose Modifications

The dose modifications listed are for haematological, liver and renal function only. Dose adjustments may be necessary for other toxicities as well.

In principle all dose reductions due to adverse drug reactions should not be re-escalated in subsequent cycles without consultant approval. It is also a general rule for chemotherapy that if a third dose reduction is necessary treatment should be stopped.

Please discuss all dose reductions / delays with the relevant consultant before prescribing, if appropriate. The approach may be different depending on the clinical circumstances. The following is a general guide only.

Haematology

Prior to prescribing on day one of cycle one the following criteria must be met;

Criteria	Eligible Level
Neutrophil	equal to or more than $1.5x10^9$/L
Platelets	equal to or more than $100x10^9$/L

Consider blood transfusion if patient symptomatic of anaemia or haemoglobin of less than 8g/dL

On **day one** of the treatment cycle if the neutrophilsare less than $1.5x10^9$/L then in the first instance delay treatment for 7 days. If counts recover at this point continue at the initial dose. If counts remain low continue with treatment using a 20% dose reduction. If the myelosuppression recurs despite this dose reduction stop treatment.

If the platelets are less than $100x10^9$/L then in the first instance delay treatment for 7 days. If the counts recover at this point continue at the initial dose. If the counts still fall within this range continue using a 20% dose reduction. If the platelet level falls below $50x10^9$/L reduce the dose by 50%.

For **day eight** gemcitabine the following dose modifications apply. If the neutrophils are more than $1x10^9$/L administer 100% of the original dose. If the neutrophils are $0.5\text{-}1x10^9$/L administer 75% of the original dose. If the neutrophils are less than $0.5x10^9$/L omit the dose. Treatment should not be re-instated within a cycle until the neutrophil count reaches at least $0.5x10^9$/L.

If the platelets are more than $100x10^9$/L administer 100% of the original dose. If the platelets are 50-100 x 10^9/L then administer 75% of the original dose. If the platelets are less than $50x10^9$/L omit the dose. Treatment should not be re-instated within a cycle until the platelet count reaches at least $50x10^9$/L.

Hepatic Impairment

Drug	Bilirubin µmol/L		AST/ALT units	Dose (%of original dose)
Cisplatin	No adjustment necessary			
Gemcitabine	AST elevations do not seem to cause dose limiting toxicities. If bilirubin is greater than 27µmol/L, initiate treatment with dose of 800 mg/m^2.			

Renal Impairment

Drug	Creatinine Clearance (ml/min)	Dose (% of original dose)
Cisplatin	more than 60	100
	45-59	75
	less than 45	Consider carboplatin
Gemcitabine	Consider dose adjustments if the CrCl is less than 30ml/min	

Regimen

21 day cycle for 4 cycles

Drug	Dose	Days	Administration
Cisplatin	75mg/m^2	1	Intravenous infusion in 1000ml sodium chloride 0.9% with 20mmol potassium chloride at a maximum rate of 1mg cisplatin/min (minimum time 120 minutes)
Gemcitabine	1250mg/m^2	1, 8	Intravenous infusion in 250ml sodium chloride 0.9% over 30 minutes

Dosage Information

- Cisplatin will be dose banded as per the CSCCN agreed bands
- Gemcitabine will be dose banded as per the CSCCN agreed bands

Administration

Extravasation

- Cisplatin – exfoliant

- Gemcitabine - neutral

Additional Therapy

- Antiemetics

  15-30 minutes prior to chemotherapy on **day one** only;

  - aprepitant 125mg oral
  - dexamethasone 4mg oral or intravenous
  - ondansetron 8mg oral or intravenous

  As take home medication;

  - aprepitant 80mg once a day oral for 2 days
  - dexamethasone 4mg once a day oral for 3 days
  - metoclopramide 10mg three times a day when required
  - ondansetron 8mg twice a day for 3 days

  15-30 minutes prior to chemotherapy on **day eight** only;

  - metoclopramide 10mg oral or intravenous

- Cisplatin pre and post hydration as follows;

  Pre

  Furosemide 40mg oral or intravenous

  1000ml sodium chloride 0.9% with 20mmol potassium chloride and 16mmol magnesium sulphate over 60 minutes

  Post

  1000ml sodium chloride 0.9% with 20mmol potassium chloride and 16mmol magnesium sulphate over 60 minutes

  Patients should be advised to drink at least 3 litres of fluid in the 24 hours after administration of cisplatin.

- Gastric protection with a proton pump inhibitor or a H_2 antagonist may be considered in patients considered at high risk of GI ulceration or bleed

- Prophylactic antibiotics can be considered if required

Coding

- Procurement – X70.5

- Delivery – X72.1 / X72.4

References

1.Scagliotti GV, Park K, Patti S et al. Survival without toxicity for cisplatin plus pemetrexed versus cisplatin plus gemcitabine in chemonaive patients with advanced non-small cell lung cancer: a risk benefit analysis of a large phase III study. Scagliotti GV, Park K, Patti S et al.

REGIMEN SUMMARY

Day One

1. Aprepitant 125mg oral

2. Dexamethasone 4mg oral or intravenous

3. Ondansetron 8mg oral or intravenous

4. Furosemide 40mg oral or intravenous

5. 1000ml sodium chloride 0.9% with 20mmol potassium chloride and 16mmol magnesium sulphate over 60 minutes

6. Gemcitabine 1250mg/m^2 intravenous infusion in 250ml sodium chloride 0.9% over 30 minutes

7. Cisplatin 75mg/m^2 intravenous infusion in 1000ml sodium chloride 0.9% with 20mmol potassium chloride at a maximum rate of 1mg cisplatin/minute (minimum time 120 minutes)

8. 1000ml sodium chloride 0.9% with 20mmol potassium chloride and 16mmol magnesium sulphate over 60 minutes

Take Home Medicines

9. Aprepitant 80mg once a day oral for 2 days starting on day two of the cycle

10. Dexamethasone 4mg once a day oral for 3 days starting on day two of the cycle

11. Metoclopramide 10mg three times a day when required oral

12. Ondansetron 8mg twice a day oral for 3 days starting on the evening of day one of the cycle

Day Eight

13. Metoclopramide 10mg oral or intravenous

14. Gemcitabine 1250mg/m^2 intravenous infusion in 250ml sodium chloride 0.9% over 30 minutes

DOCUMENT CONTROL

Version	Date	Amendment	Written By	Approved By
1.2	9th Jan 2014	Header changed to NHS badge In name “and” replaced with dash Adverse effects put in table and toxicity removed < and > written in full Dose modification tabulated Renal and hepatic function tabulated and updated Regimen tabulated Twice daily changed to twice a day Regimen name added to summary Summary re-numbered Metoclopramide dose changed to 10mg Stat removed Bolus removed Timing of TTO antiemetics added to the summary Document control tabulated Hospital representation and disclaimer added	Dr Deborah Wright Pharmacist	Donna Kimber Pharmacy Technician
1.1	23rd Sept 2010	Header changed to include “Strength through Partnership” Footer changed to include regimen name Capitals used for first letter of the drugs in regimen name Extravasation moved to administration section Dose banding changed to “as per CSCCN agreed bands” Font changed to arial Granisetron removed from antiemetics Aprepitant incorporated as per superuser agreement Coding added Summary page added Document control added		

This chemotherapy protocol has been developed as part of the chemotherapy electronic prescribing project. This was and remains a collaborative project that originated from the former CSCCN. These documents have been approved on behalf of the following Trusts;

Hampshire Hospitals NHS Foundation Trust
NHS Isle of Wight
Portsmouth Hospitals NHS Trust
Salisbury Hospitals NHS Foundation Trust
University Hospital Southampton NHS Foundation Trust
Western Sussex Hospitals NHS Trust

All actions have been taken to ensure these protocols are correct. However, no responsibility can be taken for errors which occur as a result of following these guidelines.