Chemotherapy Protocol

LUNG CANCER – NON-SMALL CELL (NSCLC)

CARBOPLATIN (AUC6)-GEMCITABINE

Regimen

- NSCLC – Carboplatin (AUC6)-Gemcitabine

Indication

- First line therapy of stage III or IV NSCLC
- WHO Performance status 0, 1, 2
- Palliative intent

Toxicity

Drug	Adverse Effect
Carboplatin	Neuropathy, hypersensitivity
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

- EDTA or calculated creatinine clearance before the first cycle
- FBC, LFTs and U&Es prior to each cycle and FBC day 8
- A chest x-ray should be performed before each cycle

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 if the neutrophils are less than $1.5x10^9$/L 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.

On day one if the platelets are less than $100x10^9$/L 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%.

Dose adjustments for day eight should be made according to local practice guidelines or procedures.

Hepatic Impairment

Drug	Bilirubin µmol/L		AST/ALT units	Dose (%of original dose)
Carboplatin	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)
Carboplatin	Less than 20	Do not use
	Changes in the GFR of more than 10% between cycles may require dose adjustment	
Gemcitabine	Consider dose adjustments if the CrCl is less than 30ml/min	

Other

Dose reductions or interruptions in therapy are not necessary for those toxicities that are considered unlikely to be serious or life threatening. For example, alopecia, altered taste or nail changes.

Regimen

The starting dose of carboplatin AUC 6 is used with calculated GFR. AUC 5 may be considered with EDTA clearance, seek advice from the appropriate consultant before prescribing. The recommended maximum dose when using a calculated creatinine clearance at AUC5 is 900mg (creatinine clearance 125ml/min). This is not a dose included in the national dose banding table. The maximum dose has been set at 890mg in ARIA. Please check if this dose is appropriate. If you have an obese patient or an individual with a calculated creatinine clearance above 125ml/min please seek advice from the relevant consultant.

It should be noted that the dose of carboplatin may need to be altered if there is a change (improvement or reduction) in renal function of more than 10% from the previous cycle

21 day cycle for 4 cycles

Drug	Dose	Days	Administration
Carboplatin	AUC6 (max dose)	1	Intravenous infusion in 500ml glucose 5% over 60 minutes
Gemcitabine	1200mg/m^2	1, 8	Intravenous infusion in 250ml sodium chloride 0.9% over 30 minutes

Dose Information

- Carboplatin will be dose banded in accordance with the national dose bands (10mg/ml)
- The maximum dose of carboplatin for AUC 6 is 900mg. This will be set as 890mg in ARIA to comply with national dose bands.

- It should be noted that the dose of carboplatin may need to be altered if there is a change (improvement or reduction) in renal function of more than 10% from the previous cycle.

- Gemcitabine will be dose banded in accordance with the national dose bands

Administration Information

Extravasation

- Carboplatin - irritant

- Gemcitabine - neutral

Additional Therapy

- Antiemetics

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

  - ondansetron 8mg oral or intravenous
  - dexamethasone 8mg oral or intravenous

  As take home medication;

  - dexamethasone 4mg twice a day for 3 days oral
  - metoclopramide 10mg three times a day when required oral

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

  - metoclopramide 10mg oral or intravenous

- 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

References
1.National Institute of Clinical Excellence (2005). CG24. The Diagnosis and Treatment of Lung Cancer. Methods, Evidence and Guidance. DOH: London.
2.Wang LR, Huang MZ, Zhang GB et al. Phase II study of gemcitabine and carboplatin in patients with advanced non-small cell lung cancer. Cancer Chemother Pharmacol 2007; 60 (4): 601-607.

REGIMEN SUMMARY

Carboplatin (AUC6)-Gemcitabine

Day One

1. Dexamethasone 8mg oral or intravenous
   Administration Instructions
   Administer 15-30 minutes prior to SACT. This may be administered as dexamethasone 8mg (or equivalent dose) intravenous if required.

2. Ondansetron 8mg oral or intravenous
   Administration Instructions
   Administer 15-30 minutes prior to SACT. This may be given as ondansetron 8mg IV stat if required

3. Gemcitabine 1200mg/m^2 intravenous infusion in 250ml sodium chloride 0.9% over 30 minutes

4. Carboplatin AUC6 intravenous infusion in 500ml glucose 5% over 60 minutes
   Administration Instructions
   The maximum dose of carboplatin at AUC 6 is 900mg (creatinine clearance 125ml/min). This has been set at 890mg in ARIA to comply with national dose bands

Take Home Medicines (day 1 only)

5. Dexamethasone 4mg twice a day oral for 3 days starting on day 2 of the cycle
   Administration Instructions
   Take 4mg twice a day for 3 days starting on day 2 of the cycle

6. Metoclopramide 10mg three times a day when required oral
   Administration Instructions
   When required for the relief of nausea. Please supply five days or an original pack as appropriate.

Day Eight

7. Metoclopramide 10mg oral or intravenous
   Administration Instructions
   This may be administered as metoclopramide 10mg intravenous if required

8. Gemcitabine 1200mg/m^2 intravenous infusion in 250ml sodium chloride 0.9% over 30 minutes

DOCUMENT CONTROL

Version	Date	Amendment	Written By	Approved By
1.3	Aug 2022	Carboplatin national dose bands Coding removed Administration Instructions added to summary	Dr Deborah Wright Pharmacist	Donna Kimber Pharmacy Technician
1.2	December 2013	CSCCN removed from header Regimen name changed to add in (AUC6) and “and” replaced with a dash Toxicities removed Tables used throughout < and > removed and replaced with words Gemcitabine hepatic impairment updated In regimen initial paragraph on carboplatin dose changed to include maximum dose. Metoclopramide dose changed to 10mg Antiemetic routes written in full and stat removed. Bolus removed from injection OPCS updated Summary re-numbered Staring on day 2 added to dexamethasone Hospitals and disclaimer added	Dr Deborah Wright Pharmacist	Donna Kimber Pharmacy Technician
1.1	Sept 2010	Font changed to Arial Header altered to include “Strength through Partnership” Drug names given capitals in regimen Extravasation moved to under Administration Information Footer changed to include regimen name and review date removed Standard paragraph added to introduction in dose modifications Dose modifications format (not information) changed Dose information added to reflect super user agreements Granisetron removed from antiemetics Coding added Summary page added Document control added	Dr Deborah Wright Pharmacist	Donna Kimber Pharmacy Technician

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 Hospital 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.