Chemotherapy Protocol

LUNG CANCER – SMALL CELL (SCLC)

CYCLOPHOSPHAMIDE and ETOPOSIDE

Regimen

- SCLC - Cyclophosphamide and Etoposide

Indication

- First or second line therapy of SCLC
- WHO performance status 0, 1, 2, 3
- Palliative intent

Toxicity

Drug	Adverse Effect
Cyclophosphamide	Haemorrhagic cystitis, taste disturbances, gastritis
Etoposide	Alopecia, hyperbilirubinaemia

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 prior to each cycle
- 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 $1x10^9$/L
Platelets	equal to or more than $100x10^9$/L

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

Subsequently if the neutrophils are less than $1x10^9$/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%.

Kidney / Liver Impairment

Hepatic Impairment

Drug	Bilirubin µmol/L		AST/ALT units	Dose (%of original dose)
Cyclophosphamide	Consider dose adjustments if the bilirubin is greater than ULN or the ALP/AST/ALT is greater than 2xULN			
Etoposide	If the bilirubin is 26-51umol/L or the AST 60-180units/L give 50% of the dose. Above these levels avoid if possible.			

Renal Impairment

Drug	Creatinine Clearance (ml/min)	Dose (% of original dose)
Cyclophosphamide (consider mesna)	10-20	75
	less than 10	50
Etoposide	15-50	75
	Less than 15	50

Regimen

Etoposide is available as 50mg and 100mg capsules. Cyclophosphamide is available as a 50mg tablet. Doses must be rounded to the nearest 50mg or an alternate day dosing schedule used to facilitate the administration of the correct dose. It must be made clear to all staff, including those in the community, that this is a short course of therapy that must not be continued. It should be prescribed from secondary care only.

28 day cycle for 6 cycles

Drug	Dose	Days	Administration
Cyclophosphamide	50mg twice a day	1 – 14 incl.	Oral
Etoposide	50mg twice a day	1 – 14 incl.	Oral

21 day cycle for 6 cycles

Drug	Dose	Days	Administration
Cyclophosphamide	200mg once a day	1 – 5 incl.	Oral
Etoposide	200mg once a day	1 – 5 incl.	Oral

Administration Information

- Cyclophosphamide should be taken an hour before food or on an empty stomach and swallowed whole, not chewed, with plenty of water
- Etoposide should be taken an hour before food or on an empty stomach

Additional Therapy

- SCLC can be very sensitive to chemotherapy. This may lead to the development of tumour lysis syndrome at the start of therapy. For those at risk individuals' allopurinol should be prescribed. This should begin the day before chemotherapy treatment and continue for as long as a significant chemosensitive tumour bulk remains. Normally one cycle suffices.
- Metoclopramide 10mg three times a day when required oral
- 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

Additional Information

- The National Patient Safety Agency Alert NPSA/2008/RRR001 must be adhered to in relation to oral chemotherapy.

Coding (OPCS 4.5 version 2)

- Procurement – X70.1
- Delivery – X73.1

References

1. Grunberg SM, Crowley J, Hande KR et al. Treatment of poor prognosis extensive disease small cell lung cancer with an all oral regimen of etoposide and cyclophosphamide – a Southwest Oncology Group clinical and pharmacokinetic study. Cancer Chemother Pharmacol 1999; 44 (6): 461-468.

REGIMEN SUMMARY

Cyclophosphamide-Etoposide PO (14 day)

Day One

1. Cyclophosphamide 50mg twice a day for 14 days oral
2. Etoposide 50mg twice a day for 14 days oral
3. Metoclopramide 10mg three times a day when required oral

Cyclophosphamide-Etoposide PO (5 day)

Day One

1. Cyclophosphamide 200mg once a day for 5 days oral
2. Etoposide 200mg once a day for 5 days oral
3. Metoclopramide 10mg three times a day when required oral

DOCUMENT CONTROL

Version	Date	Amendment	Written By	Approved By
1.2	December 2013	CSCCN removed from header Toxicities removed Tables used throughout Renal and hepatic function updated < and > removed and words used Metoclopramide dose changed to 10mg TDS OPCS updated Name changed added to top of summary page Once daily and twice daily changed to once a day and twice a day 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 Footer changed to include regimen name and review date removed Standard paragraph added to introduction in dose modifications Dose modifications format (not information) changed 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 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.