Chemotherapy Protocol

LYMPHOMA

CYCLOPHOSPHAMIDE-ETOPOSIDE ORAL

Regimen

- Lymphoma – Cyclophosphamide-Etoposide PO

Indication

- Palliative treatment of malignant lymphoma

Toxicity

Drug	Adverse Effect
Cyclophosphamide	Dysuria, haemorrragic cystitis (rare), taste disturbances
Etoposide	Alopecia, hyperbilirubinaemia

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

Patients diagnosed with Hodgkin's Lymphoma carry a lifelong risk of transfusion associated graft versus host disease (TA-GVHD). Where blood products are required these patients must receive only irradiated blood products for life. Local blood transfusion departments must be notified as soon as a diagnosis is made and the patient must be issued with an alert card to carry with them at all times.

Monitoring

Drugs

- FBC, LFTs and U&Es prior to day one of treatment
- Albumin prior to each cycle

Dose Modifications

The dose modifications listed are for haematological, liver and renal function and drug specific toxicities 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.

Haematological

Dose modifications for haematological toxicity in the table below are for general guidance only. Always refer to the responsible consultant as any dose reductions or delays will be dependent on clinical circumstances and treatment intent. Low counts can be a consequence of bone marrow infiltration as well as drug toxicity.

Consider blood transfusion if patient symptomatic of anaemia or has a haemoglobin of less than 8g/dL. **Irradiated blood products must be used in Hodgkin's Lymphoma patients.**

Neutrophils ($x10^9$/L)	**Dose Modifications (cyclophosphamide and etoposide)**
greater than or equal to 1	100%
less than 1	Delay until recovery to $1x10^9$/L or above
Platelets ($x10^9$/L)	**Dose Modifications (cyclophosphamide and etoposide)**
greater than or equal to 75	100%
less than 75	Delay until recovery to $75x10^9$/L or above

*Hepatic Impairment**

Please note that the approach may be different where abnormal liver function tests are due to disease involvement.

Drug	**Bilirubin µmol/L**		**AST/ALT units/L**	**Dose (% of original dose)**
Cyclophosphamide	Evidence suggests dose reduction not necessary.			
Etoposide	**30-51	or	60-180	Consider dose reducing to 50%
	more than 51	or	more than 180	Clinical decision

* Please note that as a palliative regimen dose adjustments for hepatic and renal function are for guidance only. Treatment doses should be modified according to individual clinical circumstances.

**Limit reflects local practice and may vary from published sources

*Renal Impairment**

Drug	Creatinine Clearance (ml/min)	Dose (% of original dose)
Cyclophosphamide	more than 20	100%
	10-20	75%
	less than10	50%
Etoposide	more than 50	100%
	15-50	75%
	Less than15	50%

* Please note that as a palliative regimen dose adjustments for hepatic and renal function are for guidance only. Treatment doses should be modified according to individual clinical circumstances.

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.

Etoposide

Where significant reductions in albumin levels occur consider reducing the dose of etoposide.

Regimen

21 day cycle for 4-6 cycles (4 cycles will be set in ARIA)

Drug	Dose	Days	Administration
Cyclophosphamide	100mg	1, 2, 3, 4, 5	Oral
Etoposide	100mg	1, 2, 3, 4, 5	Oral

Please note that as a palliative regimen the dose and/or duration of one or both agents may be modified according to performance status, tolerability and individual clinical circumstances.

Dose Information

- Cyclophosphamide is available as 50mg tablets.
- Etoposide is available as 50mg and 100mg capsules.

Administration Information

- Cyclophosphamide tablets should be swallowed whole with a full glass of water
- Etoposide capsules should be taken an hour before food or on an empty stomach

Additional Therapy

- Anti-emetics
    - metoclopramide 10mg three times a day oral when required
- Mouthwashes according to local or national policy on the treatment of mucositis
- Gastric protection with a proton pump inhibitor or a H2 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 followed when prescribing, dispensing or administering oral chemotherapy.
- It must be made clear to all staff, including those in the community, that this is a short course of oral chemotherapy that must not be continued.
- Patients should be assessed for suitability for oral chemotherapy prior to starting treatment.

Coding (OPCS 4.6)

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

REGIMEN SUMMARY

Cyclophosphamide-Etoposide PO

Cycle 1 Day One

Take Home Medicines

1. Warning –Check blood transfusion status
   Administration Instructions
   Patients with HODGKIN'S lymphoma carry a lifelong risk of transfusion associated graft versus host disease. Where blood products are required these patients must receive ONLY IRRADIATED BLOOD PRODUCTS for life. Ensure transfusion departments are notified and the patient has been issued with an alert card to carry with them at all times.

2. Cyclophosphamide 100mg once a day oral for 5 days

3. Etoposide 100mg once a day oral for 5 days

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

Cycles 2, 3 and 4 Day One

Take Home Medicines

1. Cyclophosphamide 100mg once a day oral for 5 days

2. Etoposide 100mg once a day oral for 5 days

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

DOCUMENT CONTROL

Version	Date	Amendment	Written By	Approved By
1.1	Jan 2015	Header changed Toxicities removed Hepatic and renal impairment tables updated Metoclopramide dose changed to 10mg Mucositis recommendation changed OPCS code updated "Warning-Check blood transfusion status" added to cycle 1 Disclaimer added	Donna Kimber Pharmacy Technician	Rebecca Wills Pharmacist
1	May 2012	None	Rebecca Wills Pharmacist Dr Debbie Wright Pharmacist	Dr Andrew Davies Consultant Medical Oncologist Dr Alison Milne Consultant Haematologist

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 Foundation 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.