

## Chemotherapy Protocol

### LYMPHOMA

### RITUXIMAB

(weekly)

#### Regimen

- Lymphoma – Rituximab (weekly)

#### Indication

- CD20 positive indolent non Hodgkin's lymphoma.

#### Toxicity

Drug	Adverse Effect
Rituxumab	Severe cytokine release syndrome, increased incidence of infective complications, progressive multifocal leukoencephalopathy

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

#### Monitoring

##### *Drugs*

- FBC, LFTs and U&Es prior to day one of treatment
- Check hepatitis B status before starting treatment with rituximab

#### 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*

Rituximab is not considered myelotoxic therefore dose adjustment for haematological parameters is not required. However, use with caution or consider a reduction of cell load by other means prior to rituximab infusion if the white cell count is greater than  $25 \times 10^9/L$  or there is bulky disease as this increases the risk of severe cytokine release syndrome.

### Hepatic Impairment

Drug	Bilirubin μmol/L		AST/ALT units/L	Dose (% of original dose)
Rituximab	N/A		N/A	No dose adjustment needed

### Renal Impairment

Drug	Creatinine Clearance (ml/min)	Dose (% of original dose)
Rituximab	N/A	No dose adjustment needed

### 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.

For all other non-haematological NCI-CTC grade 3 and above toxicities delay treatment until the adverse effect has resolved to NCI-CTC grade 1 or below. The dose should then be reduced to 75% of the original dose or discontinued as appropriate.

### Rituximab

Infusion related adverse reactions have been observed in 10% of patients treated with rituximab.

Rituximab administration is associated with the onset of cytokine release syndrome. This condition is characterised by severe dyspnoea, often accompanied by bronchospasm and hypoxia, in addition to fever, chills, rigors, urticaria, and angioedema. It may be associated with some features of tumour lysis syndrome such as hyperuricaemia, hyperkalaemia, hypocalcaemia, acute renal failure, elevated lactate dehydrogenase (LDH) and can lead to acute respiratory failure and death. This effect on the lungs may be accompanied by events such as pulmonary interstitial infiltration or oedema, visible on a chest x-ray.

Cytokine release syndrome frequently occurs within one or two hours of initiating the first infusion.

Hypersensitivity reactions, including anaphylaxis, have been reported following the intravenous administration of proteins. In contrast to cytokine release syndrome, true hypersensitivity reactions typically occur within minutes of starting the infusion. Medicinal products for the treatment of allergic reactions should be available for immediate use in the event of hypersensitivity developing during the administration of rituximab.

Use of rituximab maybe associated with an increased risk of progressive multifocal leukoencephalopathy (PML). Patients must be monitored at regular intervals for any new or worsening neurological, cognitive or psychiatric symptoms that may be suggestive of PML. If PML is suspected, further dosing must be suspended until PML has been excluded. If PML is confirmed the rituximab must be permanently discontinued.

The presence of a viral upper respiratory tract infection at the time of treatment may increase the risk of rituximab associated hepatotoxicity. Patients should be assessed for any cold or flu-like symptoms prior to treatment.

### [Regimen](#)

#### **7 day cycle for 4 cycles**

Drug	Dose	Days	Administration
Rituximab	375mg/m <sup>2</sup>	1	Intravenous infusion in 500ml sodium chloride 0.9%

### [Dose Information](#)

- Rituximab dose will be rounded to the nearest 100mg (up if halfway).

### [Administration Information](#)

#### [Extravasation](#)

- Rituximab - neutral

#### [Other](#)

- The rate of administration of rituximab varies. Please refer to the rituximab administration guidelines

### [Additional Therapy](#)

- Rituximab pre-medication
  - 30 minutes prior to rituximab
    - chlorphenamine 10mg intravenous
    - hydrocortisone 100mg intravenous
    - paracetamol 1000mg oral
- Rituximab infusion reactions
  - hydrocortisone 100mg intravenous when required for rituximab infusion related reactions
  - salbutamol 2.5mg nebule when required for rituximab related bronchospasm
  - consider pethidine 25-50mg intravenous for rituximab related rigors that fail to respond to steroids.
- Allopurinol 300mg once a day oral for the first 21 days of treatment

### [Coding](#)

- Procurement – X71.3
- Delivery – X72.2

### [References](#)

1. McLaughlin P, Grillo-Lopez AJ, Link B et al. Rituximab chimeric anti-CD20 monoclonal antibody therapy for relapsed indolent lymphoma: half of patients respond to a four dose treatment program. J Clin Oncol 1998; 16: 2825-2833.

## REGIMEN SUMMARY

Rituximab (weekly)

### Day One

1. Chlorphenamine 10mg intravenous injection
2. Hydrocortisone 100mg intravenous injection
3. Paracetamol 1000mg oral
4. Rituximab 375mg/m<sup>2</sup> intravenous infusion in 500ml sodium chloride 0.9% as per the rituximab administration guidelines
5. Hydrocortisone 100mg intravenous once only when required for the relief of rituximab infusion related reactions
6. Salbutamol 2.5mg nebule once only when required for the relief of rituximab related bronchospasm

### Take Home Medicines

7. Allopurinol 300mg once a day oral for 21 days (cycle 1 only)

## DOCUMENT CONTROL

Version	Date	Amendment	Written By	Approved By
1.1	Jan 2015	Header changed Toxicities removed Bolus removed from intravenous bolus throughout text OPCS code updated Disclaimer added	Donna Kimber Pharmacy Technician	Rebecca Wills Pharmacist
1	April 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.