cycloPHOSphamide 1500mg/m^2 For Stem Cell Mobilisation

Note: An alternate cycloPHOSphamide dosing posology is available as described in NCCP Regimen 00438 cycloPHOSphamide 2000mg/m^2 Stem Cell Mobilisation

INDICATIONS FOR USE:

INDICATION	ICD10	Regimen Code	HSE approved reimbursement status*
Mobilisation of peripheral blood stem cells for future stem cell rescue following high dose chemotherapy		00795a	N/A

*This is for post 2012 indications only

TREATMENT:

A single cycle is administered prior to stem cell harvest.

The recommended cut off level for stem cell harvest is Hb ≥ 8.0g/dL and Platelets >20 x 10^9/L

Note: **Hydration therapy is required for the safe administration of [a] cycloPHOSphamide (See Table below)**

Facilities to treat anaphylaxis MUST be present when the systemic anti-cancer therapy (SACT) is administered.

Day (Time)	Drug	Dose	Route and Method of Administration	Diluent & Rate
1 (T 0)	[b]Mesna	600mg/m^2	IV bolus	Into the side arm of a fast-flowing 0.9% NaCl drip immediately prior to cycloPHOSphamide

1 (T 0)	[a]cycloPHOSphamide	1500mg/m^2	IV infusion	1000mL 0.9% NaCl over 2 hours
1 (T +3 hours)	Mesna	600mg/m^2	[b]IV Bolus	Into the side arm of a fast-flowing 0.9% NaCl drip 3 hours post start of cycloPHOSphamide
1 (T +6 hours)	Mesna	600mg/m^2	[b]IV Bolus	Into the side arm of a fast-flowing 0.9% NaCl drip 6 hours post start of cycloPHOSphamide
2[c] (24 hours post cycloPHOSphamide)	G-CSF	10mcg/kg (round to nearest full syringe)	SC	Continue daily until stem cell harvesting has been completed.
[a] **cycloPHOSphamide Hydration: (Refer to local policy or see suggested hydration below).** Pre-Hydration: Administer 1000 mL sodium chloride 0.9% over 2-3 hours. Post-Hydration: Administer 1000 mL sodium chloride 0.9% over 2-3 hours.				
[b]Alternative Mesna regimens may be used at the discretion of the prescribing consultant				
[c]Alternative G-CSF starting day may be used at the discretion of the prescribing consultant				
Maintain strict fluid balance during therapy, by (1) monitoring fluid balance and (2) daily weights. If fluid balance becomes positive by >1000mLs or weight increases by >1 Kg, the patient should be reviewed and consideration given to diuresing with furosemide				
Consider plerixafor in poorly mobilized patients at the discretion of prescribing consultant				

Note: Administration volumes and fluids have been standardised to facilitate electronic prescribing system builds.

ELIGIBILITY:

- Indication as above

EXCLUSIONS:

- Hypersensitivity to cycloPHOSphamide or any of the excipients.

PRESCRIPTIVE AUTHORITY:

The treatment plan must be initiated by a Consultant Haematologist working in the area of haematological malignancies.

TESTS:

Baseline tests:

- FBC, renal and liver profile
- Uric acid, LDH
- Creatinine Clearance
- ECG +/- echocardiogram if clinically indicated
- Virology screen - Hepatitis B (HBsAg, HBcoreAb) and Hepatitis C.

  *See Regimen Specific Complications re Hepatitis B Reactivation

Regular tests:

- FBC, renal and liver profile required daily

Disease monitoring:

Disease monitoring should be in line with the patient's treatment plan and any other test/s as directed by the supervising Consultant.

DOSE MODIFICATIONS:

- Any dose modification should be discussed with a Consultant.
- This is a single dose therapy used as priming for stem cell collection, therefore once decision has been made to proceed there is generally no dose reduction

Renal and Hepatic Impairment:

Table 1: Recommended dose modifications in patients with renal or hepatic impairment

Drug	Renal impairment		Hepatic impairment	
cycloPHOSphamide	**CrCl (mL/min)**	**Dose**	**Level**	**Dose**
	≥30	No dose adjustment is needed	Mild and moderate	No need for dose adjustment is expected.
	10-29	Consider 75% of the original dose	Severe	Not recommended, due to risk of reduced efficacy
	<10	Not recommended, if unavoidable consider 50% of the original dose		
	Haemodialysis	Not recommended, if unavoidable consider 50% of the original dose		
Renal and hepatic dose modifications from Giraud et al 2023				

SUPPORTIVE CARE:

EMETOGENIC POTENTIAL: As outlined in NCCP Classification Document for Systemic AntiCancer Therapy (SACT) Induced Nausea and Vomiting linked here

cycloPHOSphamide: Moderate (**Refer to local policy).**

For information:

Within NCIS regimens, antiemetics have been standardised by Medical Oncologists and Haemato-oncologists and information is available in the following documents:

- NCCP Supportive Care Antiemetic Medicines for **Inclusion in NCIS** (Medical Oncology) - link here
- NCCP Supportive Care Antiemetic Medicines for **Inclusion in NCIS** (Haemato-oncology) - link here

PREMEDICATIONS:

Hydration regimen for high dose cycloPHOSphamide **(See suggested hydration above or refer to local policy)**

OTHER SUPPORTIVE CARE:

- Proton pump inhibitor **(Refer to local policy)**
- PJP prophylaxis**.** Do not give co-trimoxazole for 2 weeks prior to collection. Recommence when collection completed. **(Refer to local policy)**
- Tumour lysis syndrome prophylaxis **(Refer to local policy)**
- Anti-viral prophylaxis **(Refer to local policy)**
- Anti-fungal prophylaxis **(Refer to local policy)**
- All patients must receive irradiated cellular blood components starting 7 days prior to conditioning and until 12 months after stem cell infusion to prevent transfusion associated graft versus host disease.

ADVERSE EFFECTS

Please refer to the relevant Summary of Product Characteristics (SmPC) for details.

REGIMEN SPECIFIC COMPLICATIONS

Hepatitis B Reactivation: Patients should be tested for both HBsAg and HBcoreAb as per local policy. If either test is positive, such patients should be treated with anti-viral therapy. **(Refer to local infectious disease policy).** These patients should be considered for assessment by hepatology.

DRUG INTERACTIONS:

Consult current drug interaction databases and relevant SmPC for details.

REFERENCES:

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2. Jantunen E et al. Low-dose or intermediate-dose cycloPHOSphamide plus granulocyte colony-stimulating factor for progenitor cell mobilization in patients with multiple myeloma. Bone Marrow Transplantation. 2003 Mar;31(5):347-51
3. BCCA Protocol Summary for Single Dose cycloPHOSphamide Priming Therapy for Multiple Myeloma Prior to Autologous Stem Cell Transplant (Leukemia/BMT Program of BC- BCCA) Accessed Feb 2021. Available at: http://www.bccancer.bc.ca/chemotherapy-protocols-site/Documents/Leukemia-BMT/MYHDC_Protocol.pdf
4. Estcourt LJ et al. Guidelines for the use of platelet transfusions British Journal of Haematology, 2017, 176, 365–394
5. Giraud E L, Lijster B D, et al. Dose recommendations for anticancer drugs in patients with renal or hepatic impairment: an update. Available at: https://pubmed.ncbi.nlm.nih.gov/37269847/NCCP
6. NCCP Classification Document for Systemic Anti-Cancer Therapy (SACT) Induced Nausea and Vomiting. V5 2023. Available at: https://www.hse.ie/eng/services/list/5/cancer/profinfo/chemoprotocols/nccp-classification-document-for-systemic-anti-cancer-therapy-sact-induced-nausea-and-vomiting.pdf
7. cycloPHOSphamide (Endoxana®) Summary of Product Characteristics Accessed March 2024. Last updated 23/01/2023. Available at: https://www.hpra.ie/img/uploaded/swedocuments/Licence_PA2299-027-002_21122018112109.pdf

Version	Date	Amendment	Approved By
1	04/01/2023		NCCP Plasma cell CAG
2	22/08/2024	Reviewed. Updated baseline tests. Updated renal and hepatic dose modifications in line with Giraud et al 2023. Updated emetogenic potential section. Removed drug interactions and adverse events sections and replaced with standard wording. Updated in line with NCCP standardisation.	Dr. Amjad Hayat

Comments and feedback welcome at oncologydrugs@cancercontrol.ie.