the children's hospital at Westmead

PLERIXAFOR - CHW

DRUG PROTOCOL©

DOCUMENT SUMMARY/KEY POINTS

- Plerixafor (formerly known as AMD3100 and registered as trade name Mozobil™) is a reversible antagonist of the CXCR4 chemokine receptor and induces elevations in circulating haematopoietic progenitor cell.
- Plerixafor is used in conjunction with Granulocyte-Colony Stimulating Factor (G-CSF) to mobilise haematopoietic stem cells to the peripheral blood for collection and subsequent autologous transplantation.
- Plerixafor is indicated for optimisation of mobilisation in paediatric patients at Children's Hospital Westmead (CHW) who have failed prior mobilisation attempts with G-CSF +/- chemotherapy.
- The recommended dose of plerixafor is 0.24 mg/kg body weight by subcutaneous (SC) injection.
- The contents of the vial must be transferred to a suitable syringe for SC administration (usually prepared by pharmacy department).
- Plerixafor vials and syringes must be stored at room temperature.
- Begin treatment with plerixafor after the patient has received G-CSF once daily (morning) for 4 days, doses are administered 6 to 11 hours prior to initiation of apheresis.
- Clinicians involved with Bone Marrow Transplantation (BMT) and stem cell mobilisation procedures are authorised to prescribe plerixafor.
- Patients should be monitored for adverse reactions following plerixafor injection (may occur up to approximately 30 min after administration).

READ ACKNOWLEDGEMENT

- Clinical staff prescribing, dispensing, and administering plerixafor should read and acknowledge they understand this document.

Note: Separate Practice Guidelines may be required to cover all aspects of management

Approved by:	SCHN Policy, Procedure and Guideline Committee	CHW Drug Committee
Date Effective:	1st April	**Review Period:** 3 years
Team Leader:	Senior Pharmacist	**Area/Dept:** Oncology Services

NSW GOVERNMENT

Introduction / Background

Plerixafor (formerly known as AMD3100 and registered as trade name Mozobil™) is a reversible antagonist of the CXCR4 chemokine receptor. Stem cell CXCR4 can act to help "anchor" stem cells to the marrow matrix. Plerixafor induces elevations in circulating haematopoietic progenitor cell levels through a disruption of CXCR4 binding to its cognate ligand, resulting in the release and appearance of both mature and pluripotent cells into the systemic circulation. CHW has experience with this agent since 2004 and it now has been added to the hospital formulary for use in conjunction with G-CSF to mobilise haematopoietic stem cells to the peripheral blood for collection and subsequent autologous transplantation.

Registered Use

Plerixafor is indicated in combination with G-CSF to mobilise haematopoietic stem cells to the peripheral blood for collection and subsequent autologous transplantation in patients with lymphoma and multiple myeloma.

The safety and efficacy of plerixafor in paediatric patients has not been established in controlled clinical studies.

Approved Indications

For use by a paediatric cellular therapy transplant service in accordance with an approved protocol.
For stem cell mobilisation in patients who have failed previous mobilisation attempts with colony stimulating factors. Approved for up to 4 doses.

Specific patient groups most likely to benefit

Paediatric patients who have failed prior mobilisation attempts with G-CSF +/- chemotherapy.

Contraindications

Hypersensitivity to the active substance or to any of the excipients.

Precautions

Potential tumour cell mobilisation, leucocytosis, thrombocytopenia, allergic reactions, vasovagal reactions, possible splenic enlargement must be considered when using Plerixafor. Use with caution in patients with renal impairment. Caution with driving and operating machinery. Category D in pregnancy, not recommended during breast feeding.

Presentation

Solution for injection, 24 mg/1.2 mL (20 mg/mL) (clear, colourless to pale yellow, sterile, pH neutral, isotonic, preservative free). Plerixafor is supplied as a ready to use formulation. The contents of the vial must be transferred to a suitable syringe for SC administration.

Doses are stored at room temperature. Vials should be inspected visually for particulate matter and discolouration prior to administration and should not be used if there is particulate matter or if the solution is discoloured.

Dose

The recommended dose of plerixafor is 0.24 mg/kg/dose body weight by subcutaneous injection. Patients with moderate and severe renal insufficiency (CrCl 20-50 mL/min based on the Cockcroft-Gault formula) should have their dose of plerixafor reduced by one-third to 0.16 mg/kg/dose.

Duration of treatment

- Usually 2 to 4 days

Authorised Prescribers

- BMT consultants and fellows

Place in therapy in relation to alternatives

This is a novel agent with no current alternatives. Patients who have failed prior mobilisation attempts with G-CSF now have an additional agent available to optimise a successful mobilisation to occur and to then be able to proceed with further high dose therapy with curative intent.

Administration

Plerixafor vials and syringes must be stored at room temperature.

Begin treatment with plerixafor after the patient has received G-CSF once daily (morning) for 4 days. Doses are administered via subcutaneous injection 6 to 11 hours prior to initiation of apheresis. G-CSF should be continued each morning prior to apheresis**.

I. ** G-CSF dose should be given no less than 4 hours prior to commencement of stem cell collection.

II. CD34 count bloods should be taken prior to morning G-CSF dose administration.

Plerixafor and GCSF Administration Schedule guide

	Days 1-3 Usually outpatient	**Day 4** Patient admitted to ward in evening for first dose plerixafor	**Day 5 onwards if required*** Usually Inpatient ***Confirm with stem cell harvesting team each morning before proceeding**
CD34 Bloods taken			**Immediately prior to G-CSF in the morning**
G-CSF administration	**X X X** **Once daily in morning**	**X** **morning**	**X** **05:00 – 06:00am**
Start of apheresis			**X** **09:00 – 10-:00am**
Plerixafor administration		**X** **23:00 – 0:00** **Evening**	**X** **23:00 - 0:00** **Evening**

Safety and Patient Monitoring

Patients should be monitored for adverse reactions following plerixafor injection.

Mild to moderate systemic reactions may occur up to approximately 30 min after plerixafor administration including urticaria, periorbital swelling, dyspnoea, or hypoxia.

Other common adverse effects include diarrhoea, nausea, injection site redness or irritation.

Headache, dizziness, flatulence, abdominal pain, vomiting, bloating, dry mouth, stomach discomfort, constipation, indigestion, numbness around the mouth, sweating, generalised pink/redness, joint pains, feeling tired or unwell, difficulty in sleeping.

Cases of anaphylactic reactions, including anaphylactic shock, have been reported from world-wide post marketing experience. Patients should be monitored for these reactions post administration.

Any special requirements (admission, other medications, tests)

Plerixafor vials and syringes must be stored at room temperature. Patients are to be admitted to a ward due to the rare complication of anaphylaxis as well as the time of administration of plerixafor in the late evening and subsequent G-CSF dosing and apheresis procedure the following morning after confirming CD34 counts.

References

1. Mozobil™ Product information MIMS, Lexicomp™
2. Sevilla,J et al, Priming of Hematopoietic Progenitor Cells by Plerixafor and Filgrastim in Children With Previous Failure of Mobilization. J Pediatr Hematol Oncol 2012;34:146–150