MONOGRAPH

Pemetrexed

Scope (Staff):	Medical, Pharmacy, Nursing
Scope (Area):	All Clinical Areas

Child Safe Organisation Statement of Commitment

CAHS commits to being a child safe organisation by applying the National Principles for Child Safe Organisations. This is a commitment to a strong culture supported by robust policies and procedures to reduce the likelihood of harm to children and young people.

This document should be read in conjunction with this DISCLAIMER

⚠ HIGH RISK MEDICINE ⚠

QUICKLINKS

Dosage/Dosage Adjustments	Administration	Compatibility	Monitoring

DRUG CLASS

Antimetabolite[1,2]

Pemetrexed is a High Risk Medicine.

Pemetrexed is a Cytotoxic Medicine.

Extravasation: Pemetrexed is a non - irritant (neutral). Refer to Extravasation of Antineoplastic (Cytotoxic) Agents Policy.

Emetogenic Rating: Low. Refer to Anti-cancer Therapy Induced Nausea and Vomiting (AINV) Management Guideline.

INDICATIONS AND RESTRICTIONS

- For prescription by Oncologists or Haematologists for the treatment of malignancy as per local hospital's protocol.

CONTRAINDICATIONS

- Hypersensitivity to pemetrexed or any component of the formulation.[1,2]

PRECAUTIONS

- Third space fluid collection e.g., pleural effusion, ascites may delay pemetrexed excretion and increase toxicity.[2]
- Ibuprofen may reduce clearance of pemetrexed. Avoid use of ibuprofen 2 days before and after pemetrexed if CrCl < 80 mL/min.[2] Other NSAIDs may have similar effects however data is lacking, low dose aspirin may be used.[2]
- Patients must be instructed to take folic acid and vitamin B_{12} with pemetrexed as a prophylactic measure to reduce treatment related toxicity.[1, 2, 3]
    - Folic acid 500 microg oral daily 7 days before first pemetrexed dose and continuing until 21 days after the last dose.[2, 3 4]
    - IM vitamin B_{12} (1000 microg) in the week before the first pemetrexed dose and then every 9 weeks (subsequent doses may be given on the same day as pemetrexed).[2-5]
- To reduce the incidence and severity of cutaneous reactions, pre-treatment with steroids is recommended.[1,2, 3]
    - Dexamethasone 4 mg twice daily on the day before, day of and day after pemetrexed (or as otherwise directed by protocol).[2]
- Radiation recall (inflammation/blistering in areas of previous radiation treatment) may occur in patients who previously received radiation. [3]

Supportive care should be prescribed as per the patient protocol and/or institutional guidelines.

FORMULATIONS

Listed below are products available at PCH, other formulations may be available, check with pharmacy if required:

- Pemetrexed 100 mg vial.
- Pemetrexed 500 mg vial.

Imprest location: Formulary One

DOSAGE & DOSAGE ADJUSTMENTS

Dosage as per treatment protocol.

Renal impairment:

- Dose adjustment as per treatment protocol.
- eGFR calculator
- Withdraw treatment if CrCl < 45 mL/min[1,2, 3]

Hepatic impairment:

- Dose adjustment as per treatment protocol.

Treatment related toxicity:

- Dose adjustment as per treatment protocol.

RECONSTITUTION & ADMINISTRATION

- Handle as cytotoxic.

Pemetrexed must be compounded by Pharmacy Compounding Service (PCS) in a cytotoxic drug safety cabinet by pharmacy personnel who have appropriate training and validation in aseptic and cytotoxic drug reconstitution and handling techniques.

- **IV Infusion:** Reconstitute the vial with sodium chloride 0.9%.[4] Dilute the dose to an appropriate volume with sodium chloride 0.9%. [4]
- Administer via IV infusion over 10 minutes.[4]
- When given with cisplatin or carboplatin, give pemetrexed first and allow at least 30 minutes before giving cisplatin or carboplatin.[4]

COMPATIBILITY *(LIST IS NOT EXHAUSTIVE)*

Compatible fluids:[4]

Sodium chloride 0.9%, glucose 5%.

Only commonly used drugs are listed below. This is not a complete list of incompatible drugs. Compatibilities of IV drugs must be checked when two or more drugs are given concurrently.

INCOMPATIBLE drugs:

Calcium containing fluids, calcium salts, Hartmann's, Ringer's.[4]

MONITORING

- Pemetrexed may cause severe myelosuppression including anaemia, neutropenia, thrombocytopenia, pancytopenia. Monitor complete blood count as per protocol.[2 3]
- Monitor renal and liver function as per protocol. [2, 3]
- Observe patient for hypersensitivity reactions and stop the infusion if such reactions occur, treat symptomatically.[3]
- Monitor for signs and symptoms of mucositis, diarrhoea, pulmonary toxicity, dermatologic toxicity and radiation recall.[3]

ADVERSE EFFECTS

Common: myelosuppression, nausea, vomiting, mucositis, pharyngitis, taste disturbance, anorexia, diarrhoea, abdominal pain, dyspepsia, renal impairment, increased aminotransferases, sensory and motor neuropathy, fatigue, dehydration, fever, rash, itch, desquamation, alopecia, hypersensitivity reaction (anaphylaxis rare), oedema, conjunctivitis. [2 3]

Infrequent: supraventricular arrythmias. [2]

Rare: pancytopenia, hepatitis, colitis, radiation recall, Stevens-Johnson syndrome, toxic epidermal necrolysis. [2]

STORAGE

Vials: Store below 25°C[4]

Reconstituted solution: stable for 24 hours at 2-8 °C[4]

Infusion solution: store at 2-8 °C, infusion solutions compounded by PCS have a shelf life of 7 days in polyolefin bags as indicated by the expiry date on the PCS label. [4, 6]

INTERACTIONS

This medication may interact with other medications; consult PCH approved references (e.g. Clinical Pharmacology), a clinical pharmacist or PCH Medicines Information Service on extension 63546 for more information.

Please note: The information contained in this guideline is to assist with the preparation and administration of **pemetrexed**. Any variations to the doses recommended should be clarified with the prescriber prior to administration

Related CAHS internal policies, procedures and guidelines

Anti-cancer therapy Induced Nausea and Vomiting Management

Antineoplastic (Cytotoxic) Agents

References

1. MIMS Australia Pty Ltd. MIMS [online]. St Leonards (NSW): CMP Medica Australia Pty Ltd; Alimta. Revised 01 Nov 2023.

2. Australian Medicines Handbook [Internet]. Pharmaceutical Society of Australia. 2024 [cited 16/06/2024]. Available from: https://amhonline-amh-net-au.pklibresources.health.wa.gov.au/.

3. UpToDate [Internet]. Wolters Kluwer. 2024 [cited 16/06/2024]. Available from: https://www-uptodate-com.pklibresources.health.wa.gov.au/contents/search.

4. Australian Injectable Drugs Handbook, 9th Edition [Internet]. The Society of Hospital Pharmacists of Australia. 2024 [cited 21/11/2024].

5. Hospital SJCsR. A clinical and molecular risk-directed therapy for newly diagnosed medulloblastoma (SJMB12). Clinical trial protoco. Memphis, TN: St. Jude Children's Research Hospital; 2019 30/7/2019.

6. Patel T SG. Short Report : Extended Stability Studies on Bortezomib Injection and Infusions of Cisplatin and Pemetrexed (all Accord Healthcare). Stabilis Newsletter. 2018;41:2-6.

This document can be made available in alternative formats on request for a person with a disability.

File Path:	W:\Safety & Quality\CAHS\CLOVERS MEDICAL Pharmacy\Procedures Protocols and Guidelines\Medication Monographs_Word\PCH.MED.Pemetrexed.docx		
Document Owner:	Chief Pharmacist		
Reviewer / Team:	Senior Pharmacist, 1A CNM, Oncology Consultant		
Date First Issued:	October 2019	**Last Reviewed:**	Jul 2024
Amendment Dates:	July 2024	**Next Review Date:**	Jul 2027
Approved by:	Medication Safety Committee	**Date:**	Jul 2024
Endorsed by:	Drugs and Therapeutics Committee	**Date:**	Aug 2024
Standards Applicable:	NSQHS Standards: NSMHS: N/A Child Safe Standards: N/A		

Printed or personally saved electronic copies of this document are considered uncontrolled

Healthy kids, healthy communities

Compassion | Excellence | Collaboration | Accountability | Equity | Respect

Neonatology | Community Health | Mental Health | Perth Children's Hospital