
Shared care guideline

Penicillamine Guidelines for its use in Wilson's disease

Executive summary

- Penicillamine is used to promote copper excretion in the urine, reducing copper deposition in the liver and other organs. It is potentially toxic and therefore the drug must be monitored.
- The responsibilities of the hospital specialist, GP and patient for this shared care guideline can be found within this document (see section 11 below).

Sharing of care depends on communication between the specialist, GP and the patient or their parent/ carer. The intention to share care should be explained to the patient and accepted by them. Patients are under regular follow-up and this provides an opportunity to discuss drug therapy. The doctor/ healthcare professional who prescribes the medication has the clinical responsibility for the drug and the consequences of its use. Further information about the general responsibilities of the hospital specialist and GP can be found on the [NHS Cambridgeshire and Peterborough CCG website](#).

1. Scope

Prescribing and monitoring by GPs.

2. Aim

This shared care guideline outlines the responsibility of primary and secondary care clinicians in managing penicillamine for use in Wilson's disease.

3. Introduction

Penicillamine is used to promote copper excretion in the urine, reducing copper deposition in the liver and other organs. Penicillamine may also act by inducing metallothionein. It is potentially toxic and therefore the drug must be monitored.

4. Abbreviations

| | |
|-------|--------------------------------------|
| CCG | clinical commissioning group |
| ESR | erythrocyte sedimentation rate |
| FBC | full blood count |
| GP | general practitioner |
| MSU | mid-stream urine |
| NSAID | non-steroidal anti-inflammatory drug |
| SPC | summary of product characteristics |
| WBC | white blood (cell) count |

5. Dose and administration

All daily doses should be taken in divided doses

- Start with 1.5-2 g daily, adjusted to response
- Maintenance dose should be approximately 0.75- 1.5 g daily
- The maximum recommended dosage is 2 g daily
- Dosing in the elderly is recommended at 20mg/kg daily

Further information can be found in the SPC: <http://www.medicines.org.uk/emc/medicine/9211>

6. Adverse effects

- Rashes/ anorexia/ taste disturbance/ nausea.
- Bone marrow suppression, causing thrombocytopenia, neutropaenia and rarely anaemia. Warn patients to report sore throat, or abnormal bleeding/ bruising/ rashes, mouth ulcer.
- Renal damage indicated by proteinuria/ haematuria on urinalysis.
- Rarely febrile reactions, myasthenia, drug-induced lupus.

Further information can be found in the SPC: <http://www.medicines.org.uk/emc/medicine/9211>

7. Cautions

- Care should be exercised in patients with renal insufficiency; modification of dosage may be necessary.
- Especially careful monitoring is necessary in the elderly since increased toxicity has been observed in this patient population regardless of renal function. See section 5 for dosing.
- Concomitant use of NSAIDs and other nephrotoxic drugs may increase the risk of renal damage – see section 9.
- Penicillamine should be used with caution in patients who have had adverse reactions to gold.
- Note that there are no restrictions on vaccinations in patients treated with penicillamine.

Further information can be found in the SPC: <http://www.medicines.org.uk/emc/medicine/9211>

8. Contraindications

- Hypersensitivity to penicillamine or any of the ingredients.
- Agranulocytosis, aplastic anaemia or severe thrombocytopenia due to penicillamine.
- Lupus erythematosus.
- Moderate or severe renal impairment.
- Penicillamine should not be administered to patients who are pregnant and **therapy should be stopped when pregnancy is confirmed or suspected**, unless considered absolutely essential by the specialist.

Further information can be found in the SPC: <http://www.medicines.org.uk/emc/medicine/9211>

9. Interactions

- Concomitant use of clozapine should be avoided – increased risk of agranulocytosis.

- Concomitant use of NSAIDs and other nephrotoxic drugs may increase the risk of renal damage.
- Iron supplements, zinc supplements and antacids may reduce absorption of penicillamine – do not take within two hours of penicillamine.

Further information can be found in the SPC: <http://www.medicines.org.uk/emc/medicine/9211>.

10. Monitoring standards and actions to take in the event of abnormal test results/ symptoms

| Monitoring standard | By whom | When/how often |
|---|------------|--|
| FBC | Specialist | Prior to initiation |
| | GP | Fortnightly for the first eight weeks, followed by monthly for the remainder of the first year. Thereafter three monthly. They should also be carried out in the week after any dose increase. |
| Urgent FBC | GP | For patients developing significant infection - looking for leucopenia. |
| ESR | GP | Monthly to help assess response to treatment. |
| Urinalysis (24 hour copper excretion) | Specialist | <i>Specialist only</i> for monitoring of response |
| Urinalysis | Specialist | Prior to initiation |
| | GP | Fortnightly for the first eight weeks and thereafter monthly. Also to be carried out in the week after any dose increase. |
| Ask patient about any sore throat, fever, infection, non-specific illness, unexplained bleeding and bruising, purpura, mouth ulcers or rashes. | GP | At each encounter with patient. |
| Record results in patient held booklet. | GP | At each encounter with patient. |

| Abnormal test result/ symptoms | Action by GP |
|--|--|
| Proteinuria 2+ | Check MSU and treat if evidence of infection. If sterile and 2+ withhold drug and inform hepatology team or specialist nurse. See section 12 for contact numbers. |
| WBC < 3.5 x10⁹/l or neutrophils <2 x10⁹/l | Stop penicillamine and inform hepatology team or nurse practitioner. See section 12 for contact numbers. |
| Platelets < 150 x10⁹/l | |

Sore throat, abnormal bleeding or bruising, unexplained rash, oral ulceration, infection, fever

Check FBC; if **abnormal stop penicillamine** and inform hepatology team or specialist nurse.
See section 12 for contact numbers.

11. Shared care responsibilities

a. Hospital specialist:

- Initiate penicillamine and inform GP of dose.
- Send a letter to the GP requesting shared care for the patient.
- Inform the GP after each clinic attendance if there is any change to treatment or monitoring.
- Inform GP of patients who do not attend clinic appointments.
- To provide any advice to the patient/ carer when requested.

b. General practitioner:

- Agreement to shared care guideline by the GP.
- Prescribe penicillamine as directed by hospital specialist.
- Monitor patients on penicillamine as described in section 10.
- Report any adverse events to the hospital specialist, where appropriate, and as described in section 9.
- Request advice from the hospital specialist when necessary.

c. Patient or parent/ carer:

- Bring patient held booklet to each appointment with the hospital specialist or GP.
- Report to the hospital specialist or GP if they do not have a clear understanding of their treatment.
- Patients must not exceed the recommended dose.
- Patients must attend their scheduled clinic and blood test appointments (where relevant).
- Must inform other clinical staff that they are receiving treatment.
- Report any adverse effects to the hospital specialist or GP.

12. Contact numbers for advice and support

| Cambridge University Hospitals NHS Foundation Trust | | |
|--|--------------------------------------|---|
| Specialist | Post | Telephone |
| Dr Bill Griffiths | Consultant Hepatologist | 01223 586891 (secretary) |
| Fiona Smith | Hepatology clinical nurse specialist | 01223 256529 Option 2 or via hospital switchboard 01223 245151 |
| Paul Selby | Lead Pharmacist, Hepatology | 01223 217611 |
| Patients' medicines helpline: Mon–Fri: 09:00 to 17:00 hrs medinfo@addenbrookes.nhs.uk | | 01223 217502 |

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The information contained in this guideline is issued on the understanding that it is accurate based on the resources at the time of issue. For further information please refer to the most recent Summary of Product Characteristics <http://www.medicines.org.uk/emc/medicine/9211>