799FM.2.1 PENICILLAMINE FOR USE IN RHEUMATOLOGY
Shared Care Protocol

This protocol provides prescribing and monitoring guidance for penicillamine therapy. It should be read in conjunction with Buckinghamshire responsibilities for amber protocol medicines (appendix 3 of Buckinghamshire Joint Formulary Policy), the Summary of Product Characteristics (SPC) available on www.medicines.org.uk/emc and the BNF.

BACKGROUND FOR USE
Penicillamine is a disease modifying anti-rheumatic drug (DMARD). It is used to treat:

- Rheumatoid arthritis (licensed)
- Cystinuria (licensed)
- Autoimmune hepatitis (licensed)
- Wilson's disease (licensed)

Its use in this shared care protocol is limited to the treatment of rheumatoid arthritis.

CONTRAINDICATIONS
- Systemic lupus erythematosus (SLE)
- Moderate and severe renal impairment
- Pregnancy and breastfeeding
- Hypersensitivity to penicillamine or its excipients
- Agranulocytosis, aplastic anaemia, or severe thrombocytopenia

PRECAUTIONS
Mild renal impairment and concomitant treatment with nephrotoxic drugs – use cautiously in mild renal impairment (stage 2) estimated glomerular filtration rate (eGFR) ≥60 - 89 ml/minute/1.73 m^2 (with other evidence of kidney damage).

DOSAGE
- Typical starting dose is 125 mg PO daily, increased by 125 mg every 4 weeks until a daily dose of 500 mg is reached. The dose may be increased further to a maximum of 1 to 1.5 g PO daily.
- An inadequate response to 750 mg PO daily should prompt consideration of use of other DMARDs.

TIME TO RESPONSE
3 to 6 months.

PRE-TREATMENT ASSESSMENT BY RHEUMATOLOGIST
- Height, weight and blood pressure
- Full blood count (FBC), urea and electrolytes (U&Es), liver function tests (LFTs), urinalysis
- C-reactive protein (CRP) or erythrocyte sedimentation rate (ESR)

COMMENCING PENICILLAMINE
- The decision to initiate penicillamine should be made in conjunction with the patient/carer and supervised by a specialist. Patients should be provided with written information and education about their treatment. When appropriate they should be advised about the impact of penicillamine upon pregnancy and breastfeeding.
- Pyridoxine daily may be given to patients on long term therapy especially if the patient is on a restricted diet.

VACCINATION (recommended by the Specialist to the patient and GP)

- Pneumococcal vaccination should be administered as a single dose polysaccharide PPV-23 (Pneumovax®), if possible, prior to initiation of penicillamine therapy or as soon as possible after.
- Annual influenza vaccine should be recommended to all patients.
- Live vaccines should not be given to patients who are receiving or have received immunosuppressive therapy in the past three months[5].
- Patients who have received a live vaccine should wait until their immune response has been established before commencing immunosuppressive therapy. For most viral live vaccines, a period of up to four weeks should be sufficient[5]. Inactivated polio vaccine is available although a sub-optimal response may be seen.

ONGOING MONITORING SCHEDULE

Parameter	Frequency and Result
FBC and urinalysis (checking for protein in blood)	Every 2 weeks until dose is stable for 3 months and then monthly
U&Es, eGFR, alanine transaminase (ALT), albumin and CRP or ESR	Every 3 to 6 months as advised by specialist.

Roles and Responsibilities

Shared care assumes communication between the specialist, GP and patient. 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. Unless otherwise stated in the protocol, the responsibilities are as follows:

Specialist

- Initiate treatment, prescribe and monitor until the dose is stable and/or the GP formally agrees to shared care.
- Ensure the patient understands the nature and complications of drug therapy and their role in reporting adverse effects promptly.
- Provide a copy of the patient information leaflet and drug monitoring card where appropriate.
- Send a letter to the GP requesting shared care. Outline shared care protocol criteria and how often monitoring should be done.
- Liaise with GP regarding changes in disease management, drug dose, missed clinic appointments.
- Be available to give advice to GP and patient throughout treatment.

GP

- Prescribe medication once the dose is stable and shared care is agreed.
- Ensure all monitoring is completed in accordance to the specific shared care protocol.
- Check and record results then advise the specialist of any deteriorations or abnormal results.
- Notify the specialist to any changes in patient's condition, any adverse drug reactions or failure to attend tests.

Patient

- Agree to treatment and monitoring after making an informed decision
- Agree to being under the shared care of the GP and specialist
- Attend for blood tests and monitoring when required
- Ensure monitoring card is kept up to date and is brought to all appointments
- Report any side effects to the GP or a member of the specialist team

Note: If the patient does not attend blood monitoring, then treatment will be stopped. If the patient is more than 4 weeks late with their monitoring, then treatment should be stopped.

SIDE EFFECT	ACTIONS
WBC <3.5 x 10^9/l Neutrophils <1.6 x 10^9/l Platelets <140 x 10^9/l Unexplained eosinophilia >0.5 x 10^9/l	Withhold and discuss with rheumatologist.
Proteinuria >2+ Haematuria ≥2+	Check midstream urine (MSU) – if evidence of infection, treat appropriately. If sterile and persistent proteinuria, withhold until discussed with a rheumatologist. Check MSU. Withhold and discuss with a rheumatologist if persistent haematuria.
Severe rash or oral ulceration	Withhold and discuss with a rheumatologist.
Nausea	Advise to take tablets before bedtime.
Altered taste	Continue, may improve.
Abnormal bruising or severe sore throat	Check FBC immediately and withhold until results available.
Drug induced lupus	Stop and discuss with specialist
Pancreatitis	Stop and discuss with specialist

Please note that in addition to absolute values for haematological indices, a rapid fall or a consistent downward trend in any value should prompt caution and extra vigilance. In order to monitor trends, it is recommended that all blood test results are entered in the patient held monitoring booklet.

DRUG INTERACTIONS

Antacids, iron and zinc supplements	These products should be taken two hours before or after penicillamine. Absorption of penicillamine reduced.
Clozapine	May increase the risk of agranulocytosis and should not be prescribed with penicillamine.
Digoxin	Plasma levels may be reduced by concurrent use of penicillamine. Separate administration by 2 hours.
NSAIDs	Avoid due to risk of nephrotoxic effects.

CONTACT TELEPHONE NUMBERS FOR ENQUIRIES

Contact Details	Wycombe and Amersham	Stoke Mandeville
Rheumatology	01296 315960 (specialist nurse helpline – may take 48 hours for response; not for urgent queries) In an emergency contact consultant rheumatologist of the week 01296 316664 Rheumatology Reg: Bleep 905/907 via switchboard E-mail: bht.rheumatology@nhs.net	01296 315960 (specialist nurse helpline – may take 48 hours for response; not for urgent queries) In an emergency contact consultant rheumatologist of the week 01296 316664 Rheumatology Reg: Bleep 905/907 via switchboard E-mail: bht.rheumatology@nhs.net
Medicines Resource Centre	Bucks.medicinesresourcecentre@nhs.net Urgent queries: 01494 425355 Mon to Fri: 9am to 5pm	

SHARED CARE AGREEMENT FORM

Available on DocGen. When not available, use the Word version linked here.

REFERENCES

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