Shared Care Guidelines for the Monitoring of Erythropoietins in the Treatment of Patients with Chronic Kidney Disease (CKD)

Updated December 2022

This guidance has been prepared and approved for use in Newcastle, Gateshead, North Tyneside and Northumberland and North Cumbria in consultation with the Primary and Secondary Care NHS trusts. This guideline sets out details of the respective responsibilities of GPs and specialist services and is intended to provide sufficient information to enable GPs to monitor the erythropoietins for anaemia related to chronic kidney disease within a shared care setting.

Clinical Commissioning Groups commission local enhanced services, where appropriate, to support the monitoring and prescribing associated with some shared care guidelines

Currently there is no commissioned enhanced service to remunerate practices for additional work relating to this guideline.

This guideline has been approved to ensure that GP practices wishing to monitor erythropoietin for their patients are able to do so safely.

Endorsed for use within North Tyneside, Northumberland, Newcastle and Gateshead by the North of Tyne and Gateshead Area Prescribing Committee	
Medicines Guidelines and Use Group (MGUG)	December 2022
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An electronic version of this document can also be viewed / downloaded from the North of Tyne Area Prescribing Committee's Website

http://www.northoftyneapc.nhs.uk

Introduction

Anaemia is an almost invariable consequence of chronic kidney disease when the glomerular filtration rate falls below 50% of normal. When glomerular filtration rate falls below 20 ml/minute, 70% or more of patients will have a haemoglobin level of less than 100 g/L.

This anaemia is partially caused by a loss of peritubular cells in the kidney responsible for synthesis and secretion of erythropoietin (EPO). It causes many debilitating symptoms, e.g., tiredness, lethargy, muscle fatigue and poor exercise capacity. It is also a major factor contributing to the high prevalence of cardiovascular disease in renal patients, with the consequent increased morbidity and mortality.

Erythropoietin (EPO) stimulates erythropoiesis, by increasing proliferation and maturation of erythroid progenitors. To be fully effective, treatment with erythropoietin requires adequate iron stores. Iron deficiency therefore needs to be corrected.

All chronic kidney disease patients with haemoglobin of below 110 g/L should be considered for erythropoietin therapy, after other causes of anaemia have been excluded. Normalisation of haemoglobin is not required and a target haemoglobin of 100 - 120g/L achieves maximum therapeutic gain and gives best value for money.

Studies have shown that treatment with iron and erythropoietin improves quality of life, exercise capacity, cardiac function, sleep patterns, cognitive function, sexual function, reduces hospital admission rates, may slow the rate of progression to end-stage renal failure and delay replacement of renal function with dialysis.

Erythropoietins

- *Darbepoetin (Aranesp)* is used for treating most patients. It is administered subcutaneously either weekly, fortnightly, or once monthly. Most patients have their darbepoetin prescribed and monitored by the hospital anaemia service and supplied via a home delivery service. Haemodialysis patients have their darbepoetin administered intravenously, usually once weekly, or fortnightly on dialysis.
- *Methoxy polyethylene glycol-epoetin beta (Mircera)* is a once monthly injection.
- *Biosimilar erythropoetins* are starting to become available but currently we do not use these.

Iron Therapy

Iron deficiency in renal failure is difficult to treat with oral therapy because of intestinal malabsorption. It is therefore usually necessary to correct it using intravenous iron.

Treatment is administered by the Renal Unit Anaemia Team, usually at an outpatient community iron clinic. Treatment is usually with ferric carboxymaltose (Ferinject) or ferric derisomaltose (Monofer). Iron sucrose (Venofer) or iron dextran (CosmoFer) can also be used. Venofer is currently our iron treatment of choice for haemodialysis patients.

Shared Care Guideline for the Monitoring of Erythropoietins in Patients with Renal Failure

Responsibilities of Hospital Specialist Team

- Initiate and stabilise the patient's treatment with erythropoietin
- Alter erythropoietin dosage according to haemoglobin levels and other clinical parameters
- Prescribe erythropoietin, via the homecare system
- Measure Hb, CRP, ferritin, transferrin saturation (Tsat) and iron levels initially and every four weeks until patient stabilised and then at regular outpatient appointments
- Request participation in a shared care arrangement from the patient's GP when the patient's treatment has been stabilised and a shared care arrangement for monitoring is clinically appropriate
- Clinical review of patient by routine clinic follow-up (at least every 12 months)
- Supervise the management of anaemia including any folate and vitamin B_{12} deficiency
- Notify the patient's GP of:
    - The brand of erythropoietin prescribed
    - The dose of erythropoietin
    - Arrangements for monitoring / reviewing patient and frequency
    - Other relevant clinical information/drug therapy
    - Information and instructions given to the patient
- Provide the patient with information and a handheld record on which details of erythropoietin therapy and blood pressure will be kept

Responsibilities of GP Team

- Contact specialist team to confirm he/she is happy to accept the shared care arrangement.
- Blood Pressure – monitor blood pressure weekly for four weeks then at least monthly, targeting a BP of <140/90 mmHg. If systolic blood pressure is over 180 mmHg or the diastolic blood pressure is over 100 mmHg, on more than two consecutive occasions, the anaemia team should be advised and darbepoetin treatment will be suspended whilst antihypertensive medication is adjusted by the GP team.
- Haemoglobin – monitor at intervals advised by anaemia team and report results- usually once every 3 months. The anaemia team will advise on adjusting erythropoietin therapy if Hb is outside the target range i.e., if <100 or >120 g/L
- Ferritin - monitor at intervals advised by anaemia team and report results. The anaemia team will review and may arrange for parenteral iron therapy if ferritin is near 200 micrograms/L (target range 200 to 300 microgram/L
- Notify the hospital team of any
    - Relevant adverse reactions
    - Results of monitoring as requested (blood pressure, haemoglobin and ferritin)
    - Any other relevant laboratory results or other information relevant to the patient's care
- To seek advice from the hospital anaemia team if there is a significant rise in blood pressure, serious adverse reactions, or other concerns

Anaemia Team Contacts - Renal Services Centre, Freeman Hospital

Jan Halliday- Specialist Nurse	(0191) 2448050
Yuqing Ye- Specialist Nurse	(0191) 2448504
Anaemia team mobile	07979 803544
Anaemia team email	nuth.renalanaemiateam@nhs.net
Consultants	**Direct Dial - Secretarial Contact Telephone Numbers**
Dr I Moore	(0191) 21 37149

Information on the Drug Treatment (for detailed information refer to individual SPCs)

Indication(s)	Treatment of anaemia associated with chronic renal failure in adults and paediatric patients.
Likely duration of treatment	Indefinite
Potential Problems and Their Management	High blood pressure – see monitoring
Adverse Effects	Common – Headache, hypertension, thrombosis, injection site pain and oedema, stroke, hypersensitivity reactions including skin rash Uncommon or Rare - Convulsions, pure red cell aplasia, hyperkalaemia
Contraindications	Allergy to darbepoetin or methoxy polyethylene glycol-epoetin beta (Mircera) or another erythropoietins, or any of the excipients (see Pure red cell aplasia following erythropoietin therapy
Special Precautions / Warnings	• Pregnant women • High blood pressure (adjust antihypertensive therapy to control) • Sickle cell anaemia • Epileptic fits (seizures) • Liver disease • Ischaemic vascular disease • Malignant disease
Drug Interactions	ACE inhibitors and angiotensin 2 receptor antagonists – potential antagonism of hypotensive effect and increased risk of hyperkalaemia. Response to treatment for anaemia may affect levels of ciclosporin or tacrolimus – these will be monitored by renal physicians where appropriate
Storage Requirements	See individual SPCs

The Newcastle upon Tyne Hospitals NHS Foundation Trust

Private and Confidential

Shared Care Request/Confirmation

- Consultant/Specialist Nurse to complete first section of form and send to patient's GP.
- GP to complete second section of form and return to hospital consultant within 28 days.

A copy of the full shared care guideline can be viewed at www.northoftyneapc.nhs.uk

Consultant .....

Department .....

Hospital .....

.....

Patient Details (use hospital label if preferred)
Name .....

Address……..

Postcode ..... **Sex** ……..

Hosp. Reg. No. ..... **DOB :**…….

Monitoring Requested in Accordance with an Approved Shared Care Arrangement:

Drug Name ..... **Dose**..... **Frequency** .....

Other Information (if appropriate) .....

.....

.....

Signed (Hosp. Dr / Specialist Nurse).....
Name (print) ..... **Date** .....

To be completed by GP

Please tick one box

I ACCEPT the proposed shared care arrangement for this patient ◉
Or
I ACCEPT the proposed shared care arrangement with the caveats below ○
Or
I DO NOT ACCEPT the proposed shared care arrangement for this patient ○

My caveats / reason(s) for not accepting include:

.....

.....

Signed ..... **Name (print)** ..... **Date** .....
(Patients GP)

N.B. Participation in this shared care arrangement implies that prescribing responsibility is shared between the hospital consultant and the patient's GP