

<p>Drug</p>	<p>Darbepoetin Alfa (Aranesp) for use in Chronic Renal Disease (Adults)</p>
<p>Introduction</p>	<p>Darbepoetin alfa (Aranesp) is a novel erythropoiesis-stimulating agent (ESA). It is a hyperglycosylated derivative of erythropoietin, which means that it is molecularly distinct from recombinant human erythropoietins (Eprex, NeoRecormon, Binocrit, Eporatio or Retacrit). Darbepoetin has a longer half life than the recombinant human erythropoietins which means it can be administered less frequently.</p> <p>Under the shared care arrangements darbepoetin is being used to correct anaemia of chronic kidney disease.</p> <p>Recent evidence suggests that striving to achieve high haemoglobin levels increases the risks of complications, such as stroke and thrombosis, with no additional benefit. The updated shared care guidance supports the lower haemoglobin targets highlighted in these studies.</p>
<p>Indication</p>	<p>Anaemia associated with chronic kidney disease in patients on haemodialysis, peritoneal dialysis or not yet on dialysis where reduced levels of endogenous erythropoietin leads to decreased red cell production.</p> <p>Erythropoietin is indicated if other causes of anaemia have been excluded and patients are suffering from symptomatic anaemia such as angina, severe heart failure, left ventricular hypertrophy, fatigue precluding the activities of normal daily living, or who require transfusions to keep haemoglobin above 70g/L.⁽¹⁾</p> <p>The minimum standard set by the UK Renal Association is to maintain haemoglobin above 100g/L. The TREAT trial⁽²⁾ initiated rescue therapy with darbepoetin at Hb less than 90g/L with no evidence of harm in asymptomatic patients with haemoglobin in the range 90-100g/L. Both absolute and relative iron deficiency should be corrected (ferritin >200 micrograms/L) before initiation of darbepoetin.</p> <p>Blood transfusions are the only alternative treatment, with attendant risks of transmission of infection, fluid overload, and sensitisation to HLA antigens for those awaiting a kidney transplant.</p>

<p>Dosage and Administration</p>	<p>Detailed information is available in the product data sheet. ⁽³⁾</p> <p>Patients who have not previously received erythropoietin injections will usually start on 0.2 to 0.45 microgram/kg darbepoetin injected subcutaneously once a week, with dose adjustments of approximately 0.1 microgram/kg per dose every month depending on the haemoglobin response.</p> <p>The dose will be adjusted to maintain haemoglobin levels between 100-115g/L. Lower levels will be acceptable if the target range cannot be achieved at maximum doses of darbepoetin (1.5microgram/kg/week).</p> <p>Once haemoglobin is greater than 110g/L, the dose can be reduced and subsequently adjusted depending on haemoglobin. Iron supplements e.g. ferrous fumarate 210mg tds will be required in almost all cases, and in many patients parenteral iron is required, the details of which will be advised on by the renal team, and arranged by the hospital.</p> <p>Alternative preparations If switching treatment from Eprex or NeoRecormon or an alternative erythropoiesis-stimulating agent (ESA) to darbepoetin alfa, the renal consultant will advise on dose switches. Patients receiving Eprex or NeoRecormon or alternative ESA will be converted to darbepoetin unless the patient has documented sensitivity to darbepoetin. Dose adjustments will be determined by haemoglobin response.</p>
<p>Monitoring</p>	<p>At the hospital: U&E's ,FBC, Ferritin and Bone Profile are monitored monthly during the correction phase then every 2 to 3 months once the maintenance treatment dose has been established. Vitamin B₁₂ and folate every 12 months.</p> <p>At the surgery: Blood pressure every 2 weeks during the correction phase. Antihypertensives may need to be initiated or increased according to standard guidelines. Urgent attention should be given to BP if SBP>190 or DBP>100, (discuss with the renal consultant if necessary).</p>
<p>Contraindications & Warnings</p>	<p>Darbepoetin is contraindicated in uncontrolled hypertension (SBP>190 DBP>100).</p> <p>The data sheet also lists warnings and precautions relating to ischaemic heart disease and congestive heart failure, history of seizures or epilepsy, sickle cell disease and known hypersensitivity to the medication. The TREAT ⁽²⁾ study raises the possibility of increased risk of stroke with high target haemoglobin.</p> <p>If elevated or rising potassium is observed the renal consultant may consider stopping darbepoetin until the potassium level is corrected.</p>

Interactions	<p>The clinical results obtained so far do not indicate any interaction of darbepoetin alfa with other substances. However, there is potential for an interaction with substances that are highly bound to red blood cells e.g. cyclosporin, tacrolimus. If Aranesp is given concomitantly with any of these treatments, blood levels of these substances should be monitored and the dosage adjusted as the haemoglobin rises.</p>
Adverse Effects	<p>Possible 'flu-like' symptoms or headache at the start of treatment. Dose dependent increase in blood pressure or aggravation of hypertension. There have been isolated reports of hyperkalaemia and increases in plasma creatinine, urea and phosphate.</p> <p>Thrombosis of AV fistula may occur, especially if there is a tendency to hypotension or arteriovenous shunt complications.</p>
Responsibilities of the hospital	<p>In new patients the renal consultant will oversee prescribing for the first three months (or until the patient is stable) before referring to the GP. After this it is expected that the GP will take over prescribing and monitoring of blood pressure. The renal consultant will oversee all other monitoring.</p> <p>Darbepoetin is available in pre-filled syringes or prefilled pens (SureClick) and is suitable for self-administration.</p> <p>The hospital staff will provide training to the patient/carer on how to use and dispose of the syringes correctly and will be available to offer advice. Patient information leaflets are provided with darbepoetin.</p>
Responsibilities of the GP	<p>If you are unwilling to accept prescribing responsibility for an individual patient the consultant should be informed within 1 week of receipt of the consultant's letter. In such cases the GP must inform the consultant of relevant medical information regarding the patient and changes to the patient's medication regime irrespective of indication.</p> <p>Blood pressure should be monitored every 2 weeks during the correction phase – see section on monitoring.</p> <p>Routine blood tests will be organised by the hospital (see section on monitoring).</p> <p>A sharps bin for safe disposal of the used injection should be prescribed as needed.</p>
Responsibilities of the Patient / Carer	<p>To report any adverse effects e.g. soreness at the injection site, to the hospital or GP.</p> <p>Report to the hospital or GP if there any questions regarding their treatment.</p> <p>Dispose of sharps waste in a sharps bin as instructed.</p>
Communication	<p>The GP will be informed about starting treatment and dose changes</p>

	from the standard clinic letter.																								
Contact names & details	If you have any concerns regarding individual patients, see the clinic letter for medical contact details or contact one of the following:																								
	<table border="1"> <thead> <tr> <th>Name</th> <th>Title/Location</th> <th>Telephone / Bleep</th> </tr> </thead> <tbody> <tr> <td>Dr D Border</td> <td>Consultant Nephrologist, York and Harrogate</td> <td>Secretary 01904 725813</td> </tr> <tr> <td>Dr C Jones</td> <td>Consultant Nephrologist, York and Malton</td> <td>Secretary 01904 725374</td> </tr> <tr> <td>Dr P Laboi</td> <td>Consultant Nephrologist, York and Selby</td> <td>Secretary 01904 725813</td> </tr> <tr> <td>Dr K McCullough</td> <td>Consultant Nephrologist, York and Harrogate</td> <td>Secretary 01904 725393</td> </tr> <tr> <td>Dr Than</td> <td>Consultant Nephrologist, York and Harrogate</td> <td>Secretary 01904 725393</td> </tr> <tr> <td>Dr Worth</td> <td>Consultant Nephrologist, York</td> <td>Secretary 01904 725393</td> </tr> <tr> <td></td> <td></td> <td>Or through switchboard on 01904 631313</td> </tr> </tbody> </table>	Name	Title/Location	Telephone / Bleep	Dr D Border	Consultant Nephrologist, York and Harrogate	Secretary 01904 725813	Dr C Jones	Consultant Nephrologist, York and Malton	Secretary 01904 725374	Dr P Laboi	Consultant Nephrologist, York and Selby	Secretary 01904 725813	Dr K McCullough	Consultant Nephrologist, York and Harrogate	Secretary 01904 725393	Dr Than	Consultant Nephrologist, York and Harrogate	Secretary 01904 725393	Dr Worth	Consultant Nephrologist, York	Secretary 01904 725393			Or through switchboard on 01904 631313
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Other members of the renal team may also be able to offer advice with questions or problems and can be contacted through the hospital switchboard or the renal unit on 01904 725370																									
Costs	Darbepoetin costs approximately £200 per month based on the dosage of 30 microgram once a week. Choice of ESA is based on the hospital regional contract. Any changes will be managed through the hospital renal team and the GP and the patient will be notified.																								
References	<ol style="list-style-type: none"> 1. NICE clinical guideline 39: Anaemia management in people with chronic kidney disease, February 2011 2. The Trial to Reduce Cardiovascular Events and Aranesp Therapy (TREAT) reported in NEJM, 2009, 361 3. Aranesp, Summary of Product Characteristics last updated on the eMC: 23/03/2011 																								

Document Control:	This information is not inclusive of all prescribing information and potential adverse effects. Please refer to the SPC (data sheet) or BNF for further prescribing information.	
	The original Microsoft Word file of this document is located on: York Teaching Hospital NHS Foundation Trust Pharmacy Department X:\MEDICINES INFORMATION\Shared Care Guidelines\Approved Shared Care Guidelines\Darbepoetin Shared Care Guideline V3.1	
	Shared Care Guidelines are also available electronically via http://www.yorkandscarboroughformulary.nhs.uk/	
	Prepared by:	Lynn Ridley and Dr Colin Jones
	Checked by:	Renal Directorate
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Approved by:	D&T Committee Dec 2002, updated to reflect changes in clinical practice, Nov 2011	