

Guideline and Procedure for the Administration of Intravenous Iron Sucrose (Venofer) to Patients with Renal Anaemia

This guidance does not override the individual responsibility of health professionals to make appropriate decision according to the circumstances of the individual patient in consultation with the patient and /or carer. Health care professionals must be prepared to justify any deviation from this guidance.

INTRODUCTION

Iron is an essential nutrient and an important part of haemoglobin. Patients with chronic kidney disease have lost the ability to manufacture iron. Intravenous (IV) iron has become an established form of therapy for patients with renal anaemia and for optimizing the effectiveness of erythropoiesis stimulating agent (ESA). (NICE 2006). This use of IV iron has been found to be the most reliable form as patients with such a degree of renal failure do not tolerate oral iron effectively.

THIS GUIDELINE IS FOR USE BY THE FOLLOWING STAFF GROUPS :

Renal trained nursing and medical staff

Lead Clinician(s)

Dr Martin Ferring

Consultant Physician and Nephrologist

Approved reviewed and approved on:

25th July 2013

Extension approved on:

6th December 2017

Review Date:

8th September 2018

This is the most current document and is to be used until a revised version is available

Key amendments to this guideline

Date	Amendment	By:
March 2010	Guideline approved by	Medicines Safety Committee
27.03.12	Extended for six months to allow for further review	Dr M Ferring
25/07/2013	Guideline reviewed and approved by	Dr M Ferring
07/08/2015	Document extended for 12 months as per TMC paper approved on 22 nd July 2015	TMC
07/08/2016	Document extended for 12 months as per TMC paper approved on 22 nd July 2015	TMC
August 2017	Document extended for 6 months as per TMC paper approved on 22 nd July 2015	TMC
December 2017	Document extended for 3 months as per TLG recommendation	TLG
March 2018	Document extended for 3 months as approved by TLG	TLG
June 2018	Document extended for 3 months as per TLG recommendation	TLG

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INTRODUCTION

Iron is an essential nutrient and an important part of haemoglobin. Patients with chronic kidney disease have lost the ability to manufacture iron. Intravenous (IV) iron has become an established form of therapy for patients with renal anaemia and for optimizing the effectiveness of erythropoiesis stimulating agent (ESA). (NICE 2006). This use of IV iron has been found to be the most reliable form as patients with such a degree of renal failure do not tolerate oral iron effectively. The aim is to

- Maintain a Haemoglobin (Hb) concentration of > 11 g/dL
- Maximize the effectiveness and efficiency of erythropoietin stimulating agents

Support for Development of the Guideline

As iron is a vital element of anaemia therapy and as patients with chronic kidney disease do not tolerate oral iron satisfactorily, intravenous iron can be given in bolus doses to these patients on an outpatient basis. Their follow-up is then an arrangement between the GP and hospital on a shared care basis.

DETAILS OF GUIDELINE

This guideline will be used to support the registered renal nurse who will be administering IV Venofer to patients with renal anaemia in clinic. This guideline is to be used in conjunction with the guideline for Treatment & Management of Anaemia Associated with Chronic Kidney Disease.

IV Venofer will only be administered in an area where there are facilities and equipment to carry out basic life support and there are drugs available to deal with an allergic reaction:

1. IM Adrenaline 1:1,000 international units
2. IV Chlorphenamine 10 milligrams
3. IV Hydrocortisone 100 milligrams
4. Sodium chloride 0.9% (for injection) if required

Before the practitioner is allowed to cannulate independently and administer IV drugs, the following criteria must be met:

- Evidence of infection control update within the last 12 months
- Evidence of basic life support update within the last 12 months
- Achieved theory and practice training and competency in IV peripheral vascular device cannulation approved by the Trust
- Achieved IV drug administration competency approved by the Trust
- Registered Nurse with current Nursing and Midwifery Council status
- Listed on the patient group directive for the administration of IV Venofer iron

An initial test dose of Iron will be administered (1ml over 1 minute), then wait 10 minutes before administering the remaining 9 mls over 9 minutes.

Intravenous Venofer will normally be administered in a bolus and flushed with sodium chloride 0.9% (for injection) until the butterfly line is clear.

- Venofer 200 milligrams (10mls) over 10 mins

MONITORING TOOL

Once published, registered renal nurses competent in administering IV iron will be trained in the guideline and a signature list obtained.

Monitoring of the guideline will be carried out randomly and at least once a year when the documentation will be reviewed. This will be led by the Lead Nurse for Renal Services.

Review of the patient group directive will be carried out annually.

STANDARDS	%	CLINICAL EXCEPTIONS
For all patients to be treated in the same consistent manner and receive the same high standards	100%	None

Guideline Objectives

The objective of this guideline is to ensure that all patients with CKD renal anaemia requiring iron therapy will have the opportunity for them to receive IV Venofer iron in a safe manner and environment. The patient will have prior notice of their need for IV iron therapy and verbally consented to the treatment. They will have been informed of the risks and benefits and given the patient information leaflet, *Intravenous Iron for patients with renal anaemia (Venofer)*. The patient will attend the anaemia clinic for this treatment at mutually agreed dates and times with the nurse. The nurse providing the treatment will have passed a competency in order for them to carry this out in a nurse led clinic. (Appendix 5)

Guideline Steps

1. Patient is referred to the ANS for assessment of their anaemia status and treatment.
 - Bloods required prior to iron administration
 - FBC
 - Ferritin
 - B12
 - Folate
 - TSATS
 - HRC
 - CRP
 - PTH
2. A check list will be completed prior to the decision to prescribe iron
 - Is the patient being treated with an erythropoietin stimulating agent or is their Hb < 12g/dL and an ESA is being considered?
 - Is the patient currently on oral iron and are they taking it correctly (i.e. on an empty stomach and not with calcium containing phosphate binders)
 - Is the patient compliant with their oral iron therapy?
 - Is the patient free from infection?
 - Does the patient have a history of anaphylactic reactions?
 - Is there a history of blood loss? (? Consider gastro-intestinal investigations)
3. Contraindications are considered:
 - a. Patient refuses
 - b. Previous severe reactions
 - c. Ferritin > 200micrograms/L before the start of the treatment
 - d. Known porphyria, haemochromatosis, haemosiderosis
 - e. 1st trimester pregnancy
 - f. Mild reaction to bolus iron but could be considered for infusion
 - g. If known arthralgia / myalgia within 24 hours of bolus or patient experiences pain on administration then consider alternative or IV iron via slow infusion (appendix 1)

- h. Oral iron must be stopped during course of IV iron, but can be restarted 7 days after the last iron injection.
4. IV Venofer is prescribed on a patient group directive and is administered when the patients Ferritin is < 100micrograms/L or TSATS <20% or % HRC >6% (Appendix 2)
5. The dosage of IV Venofer is dependant on the patients actual body weight
 - 100mg if patients weight < 60kg
 - 200mg if patients weight > 60kg
6. Prep the patient, check all details and complete check list on IV Venofer Monitoring Document (appendix 4)
7. Ensure the patient has verbally consented to having the IV iron treatment and have a copy of the Anaemia for Renal Patients and Venofer patient information leaflet.
8. Take baseline observations, BP, Pulse and attach patient ID band to arm.
9. Wash hands and gather equipment
 - PGD or prescription
 - Clean surface or trolley
 - Sharps box
 - Venofer 100milligrams vial x 2
 - 10mls syringes x 2
 - Sodium chloride 0.9% (for injection)10mls
 - 23g (blue) needle
 - 21g (green) butterfly
 - Adhesive tape
 - Dressing pack
 - Non sterile gloves
 - Chlora prep Sepp
 - Tourniquet (disposable)
 - Apron
 - Visor
 - Alcohol hand gel
 - Hard surface wipes
10. Make patient comfortable and rest limb on level surface such as a pillow
11. Select the area to be used on the patients limb and apply tourniquet
12. Alcohol gel hands and wash trolley with hard surface wipes. Allow to dry
13. Open dressing pack and empty equipment onto pack.
14. Place visor on face
15. Gel hands and don gloves
16. Draw up Venofer and sodium chloride 0.9% (for injection)
17. Clean area with Chlora prep Sepp and allow to dry. Do not touch again.
18. Insert butterfly and secure. Release tourniquet
19. Flush with few mls of sodium chloride 0.9% (for injection) to ensure patency and flow.
(Remove and resite above area if infiltrated.)
20. Administer Venofer at a rate of 1 ml per minute.
21. Flush with sodium chloride 0.9% (for injection) again to clear.
22. Remove butterfly using a clean piece of gauze.
23. Discard of sharps safely.
24. Raise limb to prevent a back flow of iron into the tissues
25. Reapply a fresh piece of gauze and tape once bleeding has seized.
26. Repeat BP and pulse.
27. Document events and treatment
28. Arrange follow-up appointment with patient

REFERENCES

- National Institute for Clinical Excellence (2006) Anaemia management in people with chronic kidney disease. London.
- Venofer . Syner-med Ltd

Appendices**Appendix 1**

Venofer By Infusion	Volume	Duration
Venofer 200 milligrams	200 mls saline	2 hours
Venofer 100 milligrams	100 mls saline	1 hour

Appendix 2Algorithm for IV iron sucrose (venofer) prescribing to correct iron deficiency

iv Iron sucrose dose: (based on the patients actual weight)

200 milligram if patient weight > 60 kg

100 milligram if patient weight < 60 kg

Haemoglobin [grams/dl]	Ferritin [micrograms/litre]	iv Iron sucrose (Venofer) [milligrams]
>11	<100	1 x dose
10 – 11	<100	2 x doses
8-9.9	<100	4 x doses
<8	<100	5 x doses


Ferritin to be rechecked 4 weeks after course completion

Appendix 3

Is the patient taking oral iron?
 Has the patient had IV iron before?
 Ensure the patient is aware of the low risk of an anaphylactic reaction?
 Check the patient has no known sensitivities to IV iron.
 Ensure there are facilities for resuscitation, including antihistamines, corticosteroids and adrenaline
 Is the patient currently taking oral antibiotics?

Appendix 4

Intravenous Venofer Bolus Monitoring Document

Intravenous Venofer Bolus Monitoring						
PID sticker						
			Allergies Adverse Drug Reactions			
			No known allergies Y / N		Signature	
Last Hb Date	Male / Female		Drug /food/ other		Reaction details	
Last CRP Date	Last Ferritin Date					
	Last Date	B12	Folate	Wgt		
Pre IV Iron Dosing Assessment						Actions
1. Is patient currently taking oral iron?			Y / N		Suspend if Yes	
2. Has patient had IV iron before?			Y / N		If no then 1st dose will be their Test Dose	
3. Ensure the patient is aware of the low risk of an anaphylactic reaction.					Aware Y / N	
4. Check the patient has no known sensitivities to IV iron?					Sensitive? Y / N	
5. Ensure there are facilities for resuscitation, including IV antihistamines, corticosteroids and adrenaline						
6. Is the patient currently taking oral antibiotics?			Y / N		If Yes then do not give IV Iron	
1st Dose						
Date						
Has pre assessment check list been reviewed and patient is suitable for IV iron dose?						Y / N
Pre Dosing						
BP	P	Infection Free	Dose	Route	Signature	Comments
Post Dosing						
BP	P	Comments				
Patient to wait for 15 minutes after first test dose, observing for any allergic response			Outcome			
2nd Dose						
Date						
Has pre assessment check list been reviewed and patient is suitable for IV iron dose?						Y / N
Pre Dosing						
BP	P	Infection Free	Dose	Route	Signature	Comments
Post Dosing						
BP	P	Comments				
PID sticker			Male / Female			
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WAHT-REN-003

It is the responsibility of every individual to check that this is the latest version/copy of this document.

	Allergies					
3rd Dose						
Date <input style="width: 150px;" type="text"/>						
Has pre assessment check list been reviewed and patient is suitable for IV iron dose? Y/N						
Pre Dosing						
BP	P	Infection Free	Dose	Route	Signature	Comments
Post Dosing						
BP	P	Comments				
4th Dose						
Date <input style="width: 150px;" type="text"/>						
Has pre assessment check list been reviewed and patient is suitable for IV iron dose? Y/N						
Pre Dosing						
BP	P	Infection Free	Dose	Route	Signature	Comments
Post Dosing						
BP	P	Comments				
5th Dose						
Date <input style="width: 150px;" type="text"/>						
Has pre assessment check list been reviewed and patient is suitable for IV iron dose? Y/N						
Pre Dosing						
BP	P	Infection Free	Dose	Route	Signature	Comments
Post Dosing						
BP	P	Comments				
Check Ferritin 4 weeks after 5th dose		Is repeat course of 5 more doses required?				
Date		Y / N				
Result						

Appendix 5

Assessment of Competency for the administration of IV Iron Sucrose (Venofer)

Name	Date	Assessor	Pass / Fail

Preparation	Pass	Comments	Assessor
<ul style="list-style-type: none"> • Demonstrates correct hand hygiene technique • Ensures equipment for resuscitation is available • Wears correct PPE equipment • Prepare patient (observations onto IV monitoring document, ID band, allergies, review recent blood results) • Checks prescription / PGD (drug, dose, date, time, route, method, validity, test dose,) • Explains procedure to patient • Gathers correct equipment & drugs (checking against prescription, expiry date etc & with 2nd nurse) • Prepares equipment as per Venofer guideline 			
Administration of IV Venofer			
<ul style="list-style-type: none"> • Ensures the patient is comfortable and confirm again the procedure to be carried out • Don PPE, alcohol gel hands and don gloves • Draw up IV solutions for injection • Using an-aseptic technique, clean the selected area for injection with 2% CHG and 70% alcohol • Insert butterfly and secure • Check patency and flush with saline • Administer Venofer. (<i>Test dose: 1ml over 1min and wait 10mins, before administering remaining 9mls over 9mins. All other doses 10mls over 10mins</i>) • Flush with saline till clear • Remove butterfly apply gauze and raise limb. • Apply clean gauze once bleeding has ceased. • Safely discard of all sharps and equipment 			
Documenting Outcomes & Supporting Knowledge			
<ul style="list-style-type: none"> • Document outcomes and drugs administered • Repeat post observations • Provide patient with follow-up for (repeat iron dosing, referral to GP, check Ferritin levels) • Can discuss the uses of iron and reasons for administering IV. • Can discuss the side effects and potential of having an allergic reaction • Has an in date venepuncture and IV drug administration assessment competency • Has attended an infection control update within the last 12 months 			

CONTRIBUTION LIST**Key individuals involved in developing the document**

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Name	Directorate / Department

Circulated to the chair of the following committee's / groups for comments

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