crohn's colitis

Name of Clinical Care Pathway

Iron Deficiency

Objective

Monitor for and manage iron deficiency

Patient Population

Adult patients (>18 years) with a known diagnosis of inflammatory bowel disease

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These clinical decision support tools were developed by Canadian experts in IBD, based on their interpretation of current evidence and considerations specific to Canadian healthcare. International guidelines from Europe and the United States are available. However, these may reflect regional factors not directly applicable in Canada.

Abbreviations

FCM	Ferric carboxymaltose
Fe	Iron
g	Gram
Hb	Hemoglobin
IBD	Inflammatory bowel disease
IV	Intravenous
kg	Kilogram
L	Litre
mL	Millilitre
mg	Milligram
PRBC	Packed red blood cells
TSAT	Transferrin saturation
µg	Microgram
FCM	Ferric carboxymaltose
Fe	Iron

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Highlights from this CCP

Parenteral iron is recommended over oral iron. However, oral and parenteral iron effectively correct iron deficiency anemia. The decision of the optimal form of iron for each patient remains at the discretion of the prescriber, based on the patient's characteristics and needs.

Introduction

This care protocol provides a general guideline for monitoring and managing iron deficiency in adults with inflammatory bowel disease. The availability of the listed options for iron replacement may vary across organizations.

IBD provider

1. Review complete blood count (hemoglobin [Hb], Mean corpuscular volume), Fe, ferritin, transferrin, and total iron binding capacity.
2. Iron deficiency is diagnosed with ferritin <30 µg/L in the absence of active disease, or ferritin <100 µg/L with concurrent inflammation, and transferrin saturation (TSAT) <20%.
3. Review Hb
    - Hb <70 g/L → Consider urgent packed red blood cell (PRBC) transfusion if symptomatic or urgent iron infusion (if asymptomatic) and repeat Hb in 2 weeks.
    - Hb = 70-100g/L → Iron infusion and repeat Hb in 2 months.
    - Hb >100g/L → Oral iron supplements, if intolerant, organize iron infusion, repeat Hb, iron studies, c-reactive protein in 3 months.
    - If iron deficiency persists despite Hb>100 g/L, intravenous iron may still be considered
      in patients with anemia and ongoing symptoms or active disease.
    - Reassess disease activity if iron deficiency anemia recurs quickly after correction.
4. See Table 1 for iron replacement options.
5. Arrange for IV iron replacement per protocol.
6. Inform the family physician of the plan for iron replacement.

Oral iron

Alternate-day oral iron dosing is recommended, especially with ferrous formulations.

Parenteral iron

Monitor for iron overload (ferritin >800–1000 µg/L or TSAT >50%) during IV iron therapy, particularly in patients receiving repeated courses

Table 1: Options for iron replacement

Iron formulation*	Route	Common dose	Elemental iron equivalence
Ferrous gluconate	Oral	300mg/tablet	35mg
Ferrous sulfate	Oral	300mg/tablet	60mg
Ferrous fumarate	Oral	300mg/tablet	100mg
Iron polysaccharide (Feramax)	Oral	150mg/tablet	150mg
Heme iron polypeptide (Proferrin)	Oral	398mg/tablet	11mg
Ferric maltol (ACCRUFeR)	Oral	30mg/tablet	30mg
Iron sucrose (Venofer)	Intravenous	Variable based on patient requirement (100-300mg/dose)	20mg/ml
Ferric derisomaltose (Monoferric)	Intravenous	Variable based on patient requirement***	100mg/ml
Ferric carboxymaltose (Ferinject)**	Intravenous	Maximum single dose: 15 mg/kg up to a maximum of 1000 mg per infusion. Maximum cumulative	1 mL of Ferinject = 50 mg elemental iron Therefore: • 2 mL vial = 100 mg elemental iron • 10 mL vial = 500 mg elemental iron

		dose: 1000 mg per week, with doses ≥7 days apart.	• 20 mL vial = 1000 mg elemental iron • 15 mg/kg = 15 mg/kg of elemental iron • 1000 mg = 1000 mg of elemental iron
Sodium ferric gluconate (Ferrlecit)	Intravenous	125mg	125mg

Hb (g/L)	Weight <50 kg	Weight 50-70kg	Weight ≥70kg
≥ 100 g/L	500mg	1g	1.5g
< 100 g/L	500mg	1.5g	2g

*This list is not intended to be exhaustive and may not include all available treatment options or formulations.

**Ferric carboxymaltose (FCM) is effective for rapid iron repletion in IBD patients with moderate to severe anemia. Clinicians should note that hypophosphatemia following ferric carboxymaltose is common biochemically but is typically transient and asymptomatic, with clinically significant events being uncommon. Routine phosphate monitoring is not required in low-risk patients.

Monitoring should be considered in patients with risk factors or those receiving repeated or high cumulative doses. Serum phosphate typically reaches a nadir at 1–2 weeks post-infusion and returns to baseline within 8–12 weeks.

Risk factors for clinically significant hypophosphatemia include:

- Repeated or high cumulative dosing
- Long-term therapy
- Vitamin D deficiency
- Malabsorption (e.g., IBD, bariatric surgery)
- Hyperparathyroidism
- Malnutrition
- Pre-existing hypophosphatemia
- Concomitant medications (e.g., diuretics, denosumab)

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Hypophosphatemic osteomalacia is rare and primarily associated with repeated or long-term exposure, particularly in patients with underlying risk factors.

Routine phosphate supplementation is not recommended. Mild/moderate hypophosphatemia is typically managed conservatively.
Persistent or symptomatic cases should prompt reassessment of therapy.

***Maximum single dose: 15 mg/kg up to a maximum of 1000 mg per infusion. Maximum cumulative dose: 1000 mg per week, with doses ≥7 days apart. Available vial sizes (Canada): 100 mg (2 mL), 500 mg (10 mL), and 1000 mg (20 mL).

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Highlights FCM's efficacy and safety concerns, including regulatory recommendations for phosphate monitoring.

CSL Vifor. Ferinject® (ferric carboxymaltose) [product monograph]. St. Gallen, Switzerland; Imported by CSL Behring Canada, Inc., Ottawa, Ontario; Authorized March 11, 2024.

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