Dexiron Discontinuation

Background

Dexiron® (Iron Dextran injection) has been discontinued from the Canadian market. Iron sucrose (Venofer®), sodium ferric gluconate (Ferrlecit®) and iron isomaltoside (Monoferric®) are the remaining parenteral iron products available in Canada.

Challenges of iron dextran discontinuation:

- Iron dextran was the only parenteral product available for intramuscular (IM) administration; all remaining available parenteral iron products need to be administered intravenously, which restricts access (some patients may now need to travel/travel further for administration). See Table 1 for comparison of products.
- Iron isomaltoside is the only parenteral iron product approved for use in patients with or without chronic kidney disease (CKD).
    - Iron sucrose and sodium ferric gluconate are used in practice off-label in patients without CKD, but dosing is not readily available.

Suggestions:

- Encourage iron-rich diet, especially in combination with ascorbic acid, which increases absorption of non-heme iron.[1]
    - The Canadian Nutrient File generates lists of foods based on content of selected nutrients (including iron and ascorbic acid).
- Dialysis-dependent patients and chronic kidney disease patients:
    - Switch to iron sucrose or sodium ferric gluconate; dose and administer according to product monographs. See Table 1 for comparison of products.
- Patients not on dialysis and without chronic kidney disease:
    - Ensure parenteral administration is required
        - Candidates include those who do not absorb or do not tolerate oral iron; however, ensure ongoing iron therapy is required.
        - In those using parenteral because of intolerance, ensure history of adequate trial of oral therapy:
            - slow release preparations are released too far distally in the intestinal tract and are poorly absorbed[1-3]
            - take with food if GI intolerance (though does reduce absorption)[2,3]
            - every other day dosing may improve tolerance[1,4] and provides adequate iron[4]

        - use smaller, less frequent doses, which may be accomplished by switching to a salt with lower elemental iron content or switching to a liquid formulation for smaller titrations[1-3]
        - administration at bedtime may reduce adverse effects and potential for drug interactions[4]
        - Note: some oral formulations are promoted as being better tolerated (e.g. polysaccharide-iron complex) but these claims are not substantiated by studies[3]
    - In those using parenteral therapy because of poor/no response to oral therapy, consider:
        - checking adherence[1]
        - administering on an empty stomach if tolerated[1,3]
        - ruling out drug/dietary interactions interfering with iron absorption[4]
        - concomitant administration with ascorbic acid (e.g. ½ glass orange juice, 250 mg vitamin C tablet) may modestly increase non-heme iron absorption[1]
        - Note: some oral formulations are promoted as being better absorbed (e.g. heme-iron polypeptide) but these claims are not substantiated by studies)[1,3]
    - Consider another trial of oral supplement if some of these strategies had not been implemented in previous trials.
    - Educate all patients about iron-rich foods.
    - Request lab work, especially serum ferritin and hemoglobin (Hgb)
        - anemia = Hgb < 120 g/L (women) or <130 g/L (men)[5]
        - iron deficiency = serum ferritin < 20 mcg/L[6]
          Note: serum ferritin may be falsely elevated in infection, inflammation, obesity and malignancy.[6]
        - other expected findings with iron-deficient anemia: low serum iron; low percent transferrin saturation (TSAT); high total iron binding capacity (TIBC)[6]
    - If lab values are normal and no ongoing blood loss and/or malabsorption of dietary iron, consider discontinuing iron supplementation.
      Note: once anemia is corrected (~6-8 weeks),[1] some prescribers continue iron supplementation for a further 3-6 months to replenish iron stores[1,2]
- In those requiring parenteral iron therapy, use iron Isomaltoside. See Table 1 for comparison of products.

Table 1: Comparison of Parenteral Iron Products Available in Canada

	Iron Dextran (Dexiron®)[7] DISCONTINUED	Iron Sucrose (Venofer®)[8]	Sodium Ferric Gluconate (Ferrlecit®)[9]	Iron Isomaltoside (Monoferric®)[10]
ROA	IM, IV	IV	IV	IV
Health Canada-Approved Indications	Treatment of iron deficiency when oral administration unsatisfactory or impossible.	Treatment of iron-deficiency anemia in: - NDD-CKD patients, receiving an EPO or not. - HD-dependent patients receiving an EPO. - PD-dependent patients receiving an EPO.	Treatment of iron deficiency anemia in patients undergoing chronic HD who are receiving supplemental EPO.	Treatment of iron deficiency anemia in adult patients who have intolerance or unresponsiveness to oral iron therapy.
Elemental Iron Content	100 mg / 2 mL vial	100 mg / 5mL vial	62.5 mg / 5 mL vial	100 mg / mL in 1 mL, 5 mL and 10 mL vials
Administration	**IV slow injection**: undiluted at a rate not to exceed 50 mg (1mL) per minute. **IM injection**: Upper outer quadrant of the buttock	**IV slow injection**: 100 mg (HD-dependent CKD) or 200 mg (NDD-CKD) undiluted over 2 to 5 minutes. **IV infusion**: dilute with NS (see PM for volumes) and infuse at rate as per PM.	**IV slow injection**: undiluted at a max rate of 12.5 mg (1 mL) per minute. **IV infusion**: dilute in 100 mL NS, infuse over 1 hour.	**IV bolus:** up to 500 mg @ up to 250 mg iron/minute up to once per week. Give undiluted or diluted in max 20 mL NS. **IV drip infusion:** as one dose (up to 20 mg iron/kg BW or 1500 mg, otherwise split) or smaller doses weekly until cumulative dose ≤1000 mg: over ≥20 minutes > 1000 mg: over ≥30 minutes
Sensitivity Reactions* (anaphylactoid including bronchospasm, hypotension, rash/pruritus)[4]	Most commonly associated with this product; test dose (0.5 mL) required	Reported but rare; no test dose required but consider if history of drug allergies.[1]		No test dose required.[1]

BW= body weight; CKD=chronic kidney disease; EPO=erythropoietin; HD=hemodialysis; IM= intramuscular; IV=intravenous; NDD=non-dialysis-dependent; NS=normal saline (0.9% sodium chloride); PD=peritoneal dialysis; PM= product monograph; ROA= route of administration
*Allergic reactions to currently available products rare, but adverse effects more common with higher rates of infusion; slow infusion to prevent reactions.[1]

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