NURSE OR PHARMACIST-LED ANEMIA MANAGEMENT PROTOCOL SUPPLEMENTARY DOCUMENTS

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For more information please contact the project lead at brimbles@mcmaster.ca .

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My hemodialysis centre has never used an anemia management protocol or algorithm, how do we implement this protocol? What is the first step?

You are not alone; 56% of renal programs across Canada report that they are not currently using an anemia management protocol, and like you, 89% of renal programs have expressed an interest in using the CANN-NET Anemia Management Protocol. We recommend the following steps to help start the process of implementing the protocol in your hemodialysis centre:

1. Share the CANN-NET Anemia Management Protocol with colleagues (nephrologists, administrative leads of renal programs, nurse educators) and other stakeholders.
2. Take the anemia protocol to your divisional meeting for discussion and approval.
3. Consider who would lead the implementation of the protocol (hemodialysis nurses or pharmacists), and contact these key stakeholders early.
4. Contact the CANN-NET anemia management protocol team with any concerns/questions or feedback following meetings with the nephrology division and colleagues.

My hemodialysis centre is interested in using the CANN-NET anemia protocol but the protocol appears to only have 4-week and 6-week versions, and our centre has a different bloodwork schedule.

We have piloted the original two versions of the Anemia Management Protocol which outline an algorithm for bloodwork occurring every 4 or 6 weeks. In fact, 86% of renal programs across Canada indicate a 4 week timeline for bloodwork, and 6% are doing bloodwork every 6 weeks. Given the pharmacokinetics of erythropoietin products, and consistent with recommendations within the CSN commentary on the KDIGO anemia guidelines, your center could consider monitoring hemoglobin every 4-6 weeks.

I am a healthcare provider and I will be using the CANN-NET Anemia Management Protocol, what are some take away points that I should always keep in mind?

The target range for hemoglobin is between 95 and 115 g/L. There are concerns that aiming for higher targets (> 130 g/L) is harmful, and clinical trials do not demonstrate significant quality of life benefits when aiming for hemoglobin targets above 115 g/L. The majority of patients will have hemoglobin and iron results that fall within the parameters of the protocol, and as such, changes to ESA and iron dosing can be made without notifying physicians. However, to ensure patient safety, the protocol identifies several hemoglobin and iron laboratory results which require active physician input. For example, you should notify the physician if the patient's hemoglobin is less than 85 g/L, or if the hemoglobin falls more than 15 g/L between measurements.

There are also situations where iron indices will prompt you to notify the physician. For instance, even when the transferrin saturation (TSAT) is within range at 20%-49%, you should notify the physician if the patient is on intravenous antibiotics, or the patient has signs and symptoms of sepsis.

The patient has been admitted to hospital, should the protocol be continued?

Unless an order has been received to continue the anemia protocol while an inpatient, the Anemia Management Protocol should be stopped. When outpatients are admitted to the hospital, their medications often change and their responsiveness to ESA may be markedly altered. Therefore, the patient should generally be managed individually by the treating physician. The patient will restart the Anemia Management Protocol upon their discharge and an order from the physician stating the protocol is to be restarted. In some situations (for instance, for stable inpatients waiting for a long-term care bed), resuming the anemia protocol for an inpatient can occur if an order is received from the physician.

A CBC was ordered outside of the usual q 4 (or 6) weekly schedule for clinical reasons. What should I do with that hemoglobin result?

You should not use the unscheduled hemoglobin result for anemia management purposes. A patient's anemia status should be assessed every 4 weeks (or 6 weeks depending on the centre) using the Anemia Management Protocol, on the dialysis run following the drawing of the patient's q 4 week (or 6 week) bloodwork ONLY.

For more information please contact the project lead at brimbles@mcmaster.ca

FAQ's: Frequently Asked Questions

CANN-NET Nurse or Pharmacist-led Anemia Management Protocol

Who is CANN-NET?

The Canadian Kidney Knowledge Translation and Generation Network (CANN-NET) was established in collaboration with the Canadian Society of Nephrology (CSN) and the Kidney Foundation of Canada, with the goal of improving care and outcomes of patients with and at risk for chronic kidney disease (CKD).

What is a nurse or pharmacist-led anemia management protocol?

The nurse or pharmacist-led anemia management protocol is an anemia algorithm designed to be run by nurses and/or pharmacists with consultation from physicians when necessary only. This protocol seeks to have the healthcare provider direct and administer anemia management to patients, for the most part autonomously. This will help to ensure uniform, evidence-based anemia management targets are being achieved in CKD patients.

What is different about this particular protocol?

This protocol has been updated to be consistent with the CSN commentary on the KDIGO clinical practice guidelines for anemia in CKD patients, published in September 2013. The CANN-NET Anemia Management Protocol is evidence based and has taken into consideration the needs of Canadian healthcare providers for optimizing patient quality of care.

How much will it cost?

Nothing. This protocol is free and available by contacting the project lead at brimbles@mcmaster.ca

Who created this anemia management protocol?

The CANN-NET anemia protocol was modified from the 4 week hemodialysis anemia protocol used by renal programs throughout British Columbia. We thank the BC Renal Agency for providing their protocol, which was updated to be consistent with the recent CSN commentary on the KDIGO anemia guidelines. The process to modify the protocol was led by Dr Scott Brimble, a Nephrologist at McMaster University. Others involved include Dr. Braden Manns, a Nephrologist at the University of Calgary and Lauren Galbraith, research assistant at the University of Calgary. The following people provided feedback on the protocol; Dr. Louise Moist, Associate Professor, University of Western Ontario; Dr. Dan Martinusen, Chair of the Pharmacy and Formulary Committee in British Columbia; and Dr. Jennifer Macrae, Associate Professor, University of Calgary.

Who can I contact if I have questions/comments/issues with the protocol?

Please contact Dr. Scott Brimble at brimbles@mcmaster.ca

April 7th, 2015

ANEMIA MANAGEMENT PROTOCOL CASE STUDY QUESTIONS:

1. A patient who is on the anemia management protocol has the following blood-work:

Hgb 108
TSAT 38%
Ferritin 450

They currently are on an ESA (aranesp) 30 mcg weekly and iron (venofer) 100 mg q 4 weekly.

You should:
a) Increase the ESA dose one increment
b) Hold the iron
c) Continue with no changes
d) Notify the MD

ANSWER: The correct answer is c). The Hgb and TSAT are in the target range. No change is required.

2. A patient who is on the anemia management protocol has the following blood-work:

Hgb 120
TSAT 11%
Ferritin 100

They currently are on an ESA (eprex) 4000 mcg weekly and iron (venofer) 100 mg q 4 weekly. There has been no ESA dose change for 8 weeks.

You should:
a) Decrease the ESA dose one increment
b) Hold the ESA for 2 weeks and recheck the Hgb
c) Initiate the iron loading protocol (9 doses over 3 weeks)
d) Hold the iron
e) Do a) and d)

ANSWER: The correct answer is e). The Hgb is above the target range but between 116 and 125 and there has been no recent dose change. Therefore, the ESA dose should be reduced one increment (see Dosage Adjustment Tables on page 3 of the protocol). The TSAT is below target range; however, the Hgb is above 115. The iron should be held until the Hgb falls to 115 or lower.

3. A patient who is on the anemia management protocol has the following blood-work:

Hgb 100
TSAT 38%
Ferritin 300

They currently are on an ESA (eprex) 6000 mcg weekly and iron (venofer) 100 mg q 4 weekly. The previous Hgb from 4 weeks earlier was 123 g/L.

You should:
a) Increase the ESA dose one increment
b) Notify the MD
c) Initiate the iron loading protocol (9 doses over 3 weeks)
d) No change

ANSWER: The correct answer is b). The Hgb is within the target range; however, it has decreased more than 15 g/L between values (change from 123 g/L to 100 g/L = 23 g/L decrease). The MD should be notified; they may choose to increase the ESA based on the rapid decrease in Hgb. The TSAT is within target range and the patient is currently on a maintenance iron regimen, therefore no action required from iron assessment.

4. A patient who is on the anemia management protocol has the following blood-work:

Hgb 89
TSAT 18%
Ferritin 1,100 ug/L

They currently are on an ESA (aranesp) 40 mcg weekly and iron (venofer) 100 mg q 4 weekly. There have been no ESA dose changes for 8 weeks.

You should:
a) Increase the ESA dose one increment
b) Notify the MD
c) Hold the iron
d) Do a) and b)

ANSWER: The correct answer is d). The Hgb is below the target range, therefore the ESA dose should be increased by one increment (see Dosage Adjustment Tables on page 3 of the protocol). The ferritin is > 1,000 ug/L; therefore the MD should be notified. They may choose to hold the iron based on the high ferritin, or continue since the hemoglobin is below target.

5. A patient who is on the anemia management protocol has the following blood-work:

Hgb 111
TSAT 12%
Ferritin 300 ug/L

The ESA (aranesp) is currently on hold, because the last Hgb was 121, and they are on iron (venofer) 100 mg q 4 weekly. There have been no ESA dose changes for 8 weeks.

You should:
a) Restart the ESA at a one dose decrement below their last ESA dose.
b) Continue to hold the ESA
c) Initiate the iron loading protocol (9 doses over 3 weeks)
d) Do a) and c)
e) Do b) and c)

ANSWER: The correct answer is d). The Hgb is in the target range and the ESA has been on hold. You should restart the ESA at a dose reduction of one step. The TSAT is less than 20%, the Hgb is ≤ 115 g/L and they are on an ESA (you just started it). You should initiate the iron loading dose. The key to this situation is to remember that the Hemoglobin Assessment page is done first and the Iron Assessment page subsequently.

6. A patient who is on the anemia management protocol has the following blood-work:

Hgb 92
TSAT 35%
Ferritin 120 ug/L

The ESA (eprex) is currently 8000 mcg weekly and they are currently on iron (venofer) 100 mg q 4 weekly. The last ESA dose change was 4 weeks ago.

You should:
a) Increase ESA dose by one dose increment
b) Notify MD
c) Continue with no changes
d) Initiate iron loading protocol (9 doses over 3 weeks)

ANSWER: The correct answer is b). The Hgb is below the target range, but has had a dose change within the past 5 weeks and therefore should be maintained until next blood-work in 4 (or 6) weeks for reassessment. The TSAT is within the target range. However, the Ferritin is <200 ug/L. The low Ferritin, coupled with the low Hgb and a target TSAT indicates that the patient may be iron deficient, have

inadequate mobilization of iron, and that they would respond to intravenous iron with an increase in hemoglobin. You should notify the MD and suggest they consider initiating the iron loading dose.

THANK YOU

Thank you to the British Columbia Renal Agency who provided the original 4-week Hemodialysis algorithm from which the CANN-NET Anemia Management Protocol was derived.

You have completed the Staff Educational Package for the CANN-NET Anemia Management Protocol.

- Please retain the pdf of this learning module for your personal records.

FOR MORE INFORMATION:

Please contact the CANN-NET Anemia Management Protocolization Research Team.

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