CancerCare Manitoba
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Blood Disorders Day 2018 FOR Health Professionals

MPN versus Reactive Causes of Elevated Blood Counts

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Presenter Disclosure

- **Faculty / Speaker's name: Dr. Catherine Moltzan**

- **Relationships with commercial interests: None**

Learning Objectives

1. To initiate the workup of a patient with an elevated hemoglobin and hematocrit, and to know when to refer to the hematologist
2. To initiate the workup of a patient with an elevated platelet count, and to know when to refer to the hematologist

Case 1

- 70 year old male with elevated hemoglobin and hematocrit noted on routine lab work
- Hb 190 g/L, Hct 0.573, WBC 8 x 10e9/L, Plt 350 x 10e9/L
- Chemistry normal except elevated LDH 2X normal
- History of hypercholesterolemia, on medication

Step 1- Repeat

- Repeat CBC in 2 to 4 weeks
- Send Jak-2 and Erythropoietin levels

Step 2- Symptoms/Signs Urgent Referral

- Hb > 200 g/L repeated
- Leukocytosis
- Thrombocytosis
- Splenomegaly
- Unexplained Recent Thrombosis
- Erythromelalgia

Step 3- Review Jak-2 Results

- If Jak-2 positive- refer to hematologist as MPN likely
- If Jak-2 negative review erythropoietin level
  - Erythropoietin level normal or high- go to Step 4
  - Erythropoietin level low- go to Step 5

Step 4- Erythropoietin Level Normal or High

- Consider secondary cause
  - Sleep apnea
  - Renal cell cancer
- If secondary cause present manage as per the cause
- If secondary cause not apparent refer to hematology

Step 5- Erythropoietin Level Low

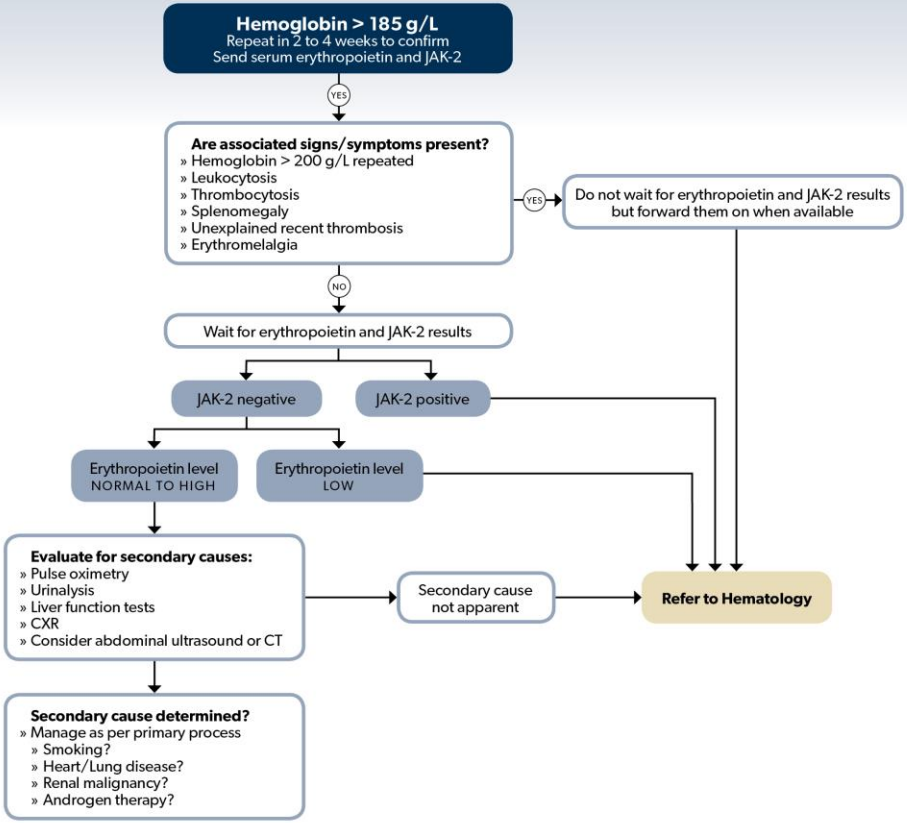
- Refer to hematology

Follow-Up With Hematologist

- No concerning features present; no secondary causes apparent
- Jak-2 positive; Erythropoietin level low
- Bone marrow consistent with MPN
- Treated with weekly phlebotomy to bring hematocrit less than 0.45 and ASA 81 mg daily

Blood Disorders Day

Erythrocytosis



Case 2

- 65 year old female with a platelet count of 900 x 10e9/L
- WBC 5 x 10e9/L normal differential
- Hb 125 g/L normal indices
- History of hypertension on medication
- Otherwise well, no symptoms
- Physical exam unremarkable

Step 1- Repeat

- Bring patient back and repeat in 2 to 4 weeks
- Repeat result is the same

Step 2- Symptoms/Signs Urgent Referral

- Platelets > 1000 x 10e9/L
- Unexplained Thrombosis
- Splenomegaly
- Other Blood Film Features Suggestive of Malignancy

Step 3- Rule Out Secondary Causes

- Iron Deficiency Anemia
- Infection/Inflammation
- Malignancy
- Connective Tissue Disease
- May consider ferritin and CRP measurements here

Step 4- Hematology Consult

- Order bcr-abl and jak-2 mutations

Follow-Up With Hematologist

- Bcr-abl negative
- Jak-2 positive consistent with Jak-2 positive
- Bone marrow exam consistent with MPN and no fibrosis
- Patient started on Hydroxyurea 1000 mg daily and ASA 81 mg daily

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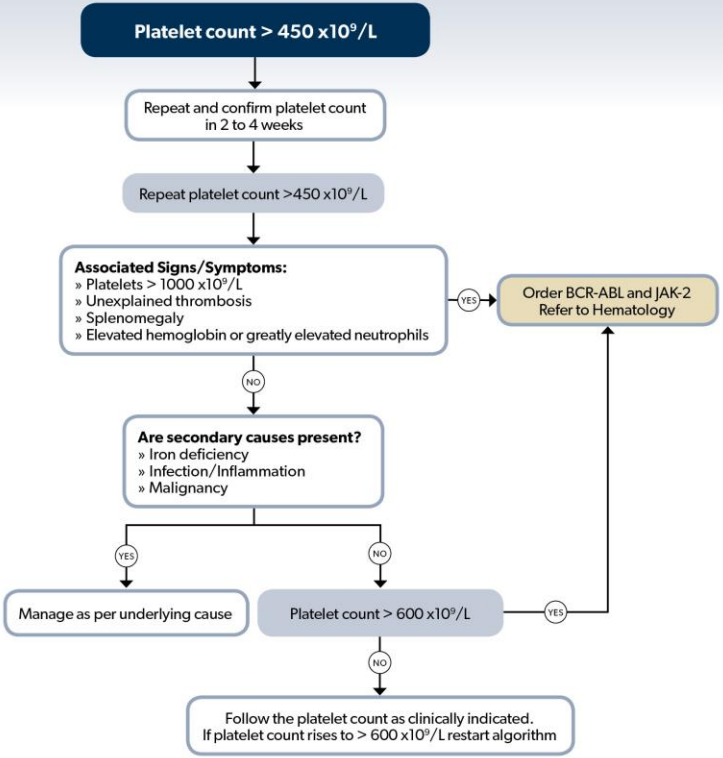
Thrombocytosis



Conclusion

- Erythrocytosis and thrombocytosis can have primary and secondary causes
- Important to recognize concerning signs/symptoms that require more urgent assessment
- Important to rule out secondary causes that do not require a hematology consult

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Thank you

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