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Community Physicians

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Chemistry Tech
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Applicability Community
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Pseudohyperkalemia

PURPOSE

Beyond hemolysis, leukocytosis or elevated white blood cells, can be a possible cause of pseudohyperkalemia. Significant leukocytosis is seen in numerous disease states such as chronic lymphocytic leukemia (CLL). It is thought that WBC production in the setting of CLL may contribute to increased cellular fragility that is more prone to mechanical stress. This hypothesis is difficult to evaluate and attempts to quantitatively correlate WBC elevation with pseudohyperkalemia suggest the effect is multifactorial. Analysis of potassium results collected in a gold top/SST can be a viable confirmation of the true potassium value if pseudohyperkalemia is suspected.Ⓐ

SCOPE

CP Labs (Moorland Reserve, Drexel Town Square, Town Hall, West Bend Health Center, North Hills) performing hematology on the Beckman Coulter and chemistry on the Roche analyzers in CP using lithium heparin plasma samples.

POLICY

- A. The Beckman Coulter will flag all WBC results that are $>50 \times 10^3/uL$ with the following statement:
 - 1. "WBC >50 can falsely elevate K results, stop AV on Chem orders"
- B. When this alert appears on the Coulter:
 - 1. The **Hematology tech** will check if a potassium is ordered (check for potassium test

within an electrolyte panel, renal panel, BMP, or CMP). After the $>50 \times 10^3/\mu\text{L}$ WBC count is final verified, a hold on chemistry AV, and a comment will populate on the potassium result automatically in Beaker. Neither of these will occur if the WBC count is not final verified.

- a. If **WBC result is not going to be final verified immediately after specimen analysis**, the Hematology tech must manually place an AV hold on the Chemistry sample to ensure the .PSEUDOK comment is added prior to final verification of the potassium. To Prevent Autoverification (see WBC >50 PseudoK attachment for detailed instructions.) The .PSUEDOK comment on the potassium states, *"This patient's plasma potassium result may be erroneously high due to an elevated white blood cell count. Please collect a serum separator tube (gold top), or lithium heparin syringe for a whole blood sample, for future potassium orders."* Refer to the attachment, "Pseudohyperkalemia Flag Tech Instructions".
2. The **Hematology tech** will add an **FYI flag** to the patient record in Epic regarding future chemistry draws that may have a potassium. The FYI flag will change the chemistry tube type from a PST (mint) to an SST (gold) automatically on future draws.
 - a. *FYI Flag: "Pseudohyperkalemia-Collect SST (gold top) for potassium testing due to WBC $>50 \times 10^3/\mu\text{L}$ "*
3. The **.PSEUDOK** comment will be automatically added onto to the potassium result (regardless of value) in Beaker following final verification of the WBC $>50 \times 10^3/\mu\text{L}$. This is why the AV hold is placed on the current chemistry sample once a $>50 \times 10^3/\mu\text{L}$ WBC count is identified.
 - a. *.PSEUDOK comment: "This patient's plasma potassium result may be erroneously high due to an elevated white blood cell count. Please collect a serum separator tube (gold top), or lithium heparin syringe for a whole blood sample, for future potassium orders."*
4. Future chemistry orders (that contain a potassium test) will have a "Special Instructions" section on the collection label so the phlebotomist is alerted that the chemistry sample will need to be collected in an SST/gold top tube due to WBC count being $>50 \times 10^3/\mu\text{L}$.

C. Instructions when the WBC count is $<50 \times 10^3/\mu\text{L}$:

1. If there is an FYI flag on the patient, and current WBC result is $<50 \times 10^3/\mu\text{L}$, this will trigger an automatic hold for chemistry and will instruct techs to remove Patient flag as it's no longer needed. SST (yellow top) will revert back to a PST (mint top).
 - a. The Chemistry tech will remove the FYI Flag from the patient for future draws as they will see the red banner: *"WBC now <50 . Remove Pseudohyperkalemia flag on patient."* Chemistry results will not AV.
 - b. Once FYI flag is removed from the patient, future chemistry draws will revert back to PST (mint-top) automatically.

REFERENCES

- A. "What Is Pseudohyperkalemia and What Should Labs Do About It?", **Author:** Steven Cotten // **Date:** OCT.23.2019 // **Source:** Scientific Shorts

Attachments

[Pseudohyperkalemia Flag Tech Instructions.docx](#)

[WBC>50 PseudoK: AV Hold for Chem](#)

Approval Signatures

Step Description	Approver	Date
Medical Directors	Steven Kroft: Medical Director	Pending
Medical Directors	Nathan Ledeboer: Associate FH System Medical Lab Director	08/2024
Medical Directors	Patrick Gardner: Medical Director	08/2024
Medical Directors	Robert Nerenz: Co-Director of Clinical Chemistry	08/2024
CP Managers and Director	Tina Bognar: CP Director	08/2024
CP Managers and Director	Karen Kunding: Lab Manager	07/2024
CP Managers and Director	Emery Smith: Lab Manager	07/2024
CP Managers and Director	Mary M Cypert: Lab Manager	07/2024
Technical Specialist	Karen Wagner: Chemistry Tech Specialist	07/2024
Policy Owner	Karen Wagner: Chemistry Tech Specialist	07/2024

Applicability

Community Physician

Standards

No standards are associated with this document

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