

Hematology Clinical Profile: Nephrology Associates, Chattanooga, Tennessee



Nephrology Associates consists of two freestanding offices in addition to multiple hospital-based clinics at Erlanger Health System in Chattanooga, Tennessee. The services they deliver encompass all aspects of kidney care, from patient education in early disease states to preemptive support including diabetes and anemia management. The practice performs all lab testing on-site, unlike most kidney centers that outsource their lab services. The on-site laboratory capability is far more efficient for the practice and

more convenient for patients. Practitioners find they can achieve better compliance and results when they have access to the most recent lab data so the plan of care can be immediately implemented.

Challenge

There is a high prevalence of anemia in patients with kidney disease mainly because of insufficient production of intrinsic erythropoietin. Erythropoietin (EPO) is a hormone produced by the kidneys that promotes the formation of red blood cells in the bone marrow. Damaged kidney cells don't produce adequate amounts of EPO which leads to anemia. Patients with anemia develop symptoms of lethargy, shortness of breath, and have difficulty carrying out activities of daily living. To correct this, patients may be given recombinant erythropoietin drugs known as erythropoietin-stimulating agents (ESAs). These drugs are given by injection and work by stimulating the production of red blood cells. When indicated, supplemental iron may be given with ESA therapy to ensure adequate hemoglobinization of the new red cells. Comprehensive care is critical in this patient population. Nephrology Associates' practice offers infusion clinics for patients requiring both iron and ESA therapy.

Practical Solution

To screen and manage patients at risk for anemia, practitioners can use the comprehensive reticulocyte panel which is part of the Sysmex expanded CBC

results. The data provided by the reticulocyte panel includes an absolute reticulocyte count, reticulocyte percentage, immature reticulocyte fraction (IRF), and reticulocyte hemoglobin equivalent (RET-He).

RET-He is a measurement of the hemoglobin content of the developing reticulocyte population. RET-He is measured at the cellular level, reflects hemoglobinization changes within 3-5 days of therapy,^{1,2} and is not impacted by inflammatory processes^{3,4}

Value-Added Parameters

Sysmex's expanded CBC parameters were introduced to the Nephrology Associates team for their challenging chronic kidney disease (CKD) patients. National and global kidney organizations have recognized the value of RET-He in anemia management and have included the parameter in key guidelines.^{5,6,7}



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Patient History/Presentation: 68-year-old female CKD stage III with polycystic kidney disease

Lab Tests	Pre Therapy	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Normal Range
Hgb	9.9 Low	9.4 Low	8.9 Low	9.0 Low	9.1 Low	8.9 Low	9.1 Low	12.0-16.0 g/dl TARGET >10
RET-He	28.5 Low	29.8 Low	36.1	30.7	31.0	30.8	30.0	29.9 -38.7 fpg
IRF	14.8	6.8	6.8	5.6	4.7	11.6	5.8	3.0 -15.9 %
Ferritin	787.9 High						1213 High	25.0-365.0 ng/ml TARGET >100
TSAT	14.8 Low						20.4 Low end of normal	20.0-50.0 % TARGET >20
Serum iron	36						40	35-150 ug/dl
Treatment		IV Venofor 200 mg						

* With permission from Nephrology Associates, Chattanooga, TN.



Diagnosis: Iron deficiency anemia with symptoms of fatigue and difficulty completing activities of daily living.

Treatment Plan:

- Completed 5 weeks of IV Venofor with good response as indicated by increased RET-He, TSAT, and serum iron. Ferritin inconclusive due to underlying inflammation.
- Referred for ESA therapy to stimulate red blood cell production as indicated by sub optimal hemoglobin and IRF levels.
- Continue on oral iron daily

Benefits of a Complete Reticulocyte Analysis including RET-He

- Indicates at 1-week post therapy that iron is absorbed and treatment is effective^{1,2}
- Well-defined lower range cutoff provides accurate treatment target
- Stable parameter with low biological variability⁸ not affected by inflammation/infection^{3,4}
- Less expensive than traditional iron tests without extra resources needed

Key Takeaway

The reticulocyte parameters provide valuable laboratory data that are easy to obtain, inexpensive to run, and do not require additional blood samples or laboratory resources.

Healthcare professionals can visit www.sysmex.com/acpclinician for more information regarding Sysmex parameters.

Bibliography

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