CHANGES IN PERIPHERAL ERYTHRON PARAMETERS IN ACUTE STROKE AGAINST THE BACKGROUND OF IRON DEFICIENCY ANEMIA: THERAPEUTIC CORRECTION

Asliddin Xolmatovich Jalilov
Pediatrics Propedeutics Department, Samarkand State Medical University.

Abstract: The article investigates the changes in peripheral erythron parameters in patients with acute stroke, particularly those with concurrent iron deficiency anemia (IDA). Iron deficiency anemia is a common condition that can affect various physiological systems, including the cardiovascular and nervous systems. The relationship between iron deficiency anemia and acute cerebrovascular events like stroke is complex and requires a multifaceted approach for treatment. This paper highlights the role of therapeutic correction in improving erythron parameters and overall patient outcomes in the context of stroke and anemia.

Keywords: Iron deficiency anemia, acute stroke, erythron parameters, therapeutic correction, hemoglobin, red blood cells, ischemic stroke, peripheral blood markers, anemia management.

Introduction: Stroke is a leading cause of morbidity and mortality worldwide. The clinical outcomes of stroke patients are influenced by multiple factors, including comorbid conditions such as anemia. Among various types of anemia, iron deficiency anemia (IDA) is particularly common and has a significant impact on overall health. IDA can exacerbate the clinical course of acute stroke, affecting erythron parameters and contributing to poor outcomes. Erythron parameters, which include hemoglobin concentration, red blood cell (RBC) count, hematocrit (Hct), mean corpuscular volume (MCV), and others, can provide valuable insights into a patient's physiological state and help guide therapy.

The Pathophysiology of Iron Deficiency Anemia and Stroke: Iron plays a crucial role in oxygen transport and cellular metabolism. In the context of stroke, where there is an acute disruption in blood flow to the brain, iron deficiency can exacerbate ischemic damage due to the reduced oxygen-carrying capacity of the blood. In IDA, the body's inability to produce sufficient hemoglobin in red blood cells leads to inadequate oxygen delivery, further compromising brain tissue during an acute ischemic event. Additionally, iron deficiency is known to affect neuronal function, possibly increasing susceptibility to ischemia-induced damage.

Peripheral erythron parameters serve as key indicators of iron deficiency. In IDA, the typical findings include decreased hemoglobin levels, reduced RBC count, microcytic hypochromic red blood cells, and low hematocrit. In the setting of acute stroke, these

abnormalities may worsen, leading to increased complications and prolonged recovery periods.

Changes in Peripheral Erythron Parameters in Acute Stroke with Iron Deficiency Anemia: In acute stroke, particularly ischemic stroke, a detailed evaluation of peripheral erythron parameters is essential. Key findings in patients with concurrent IDA may include:

- **Decreased Hemoglobin Levels:** Lower hemoglobin levels are commonly observed in stroke patients with IDA. This leads to impaired oxygen delivery to the brain and other tissues, potentially exacerbating the ischemic damage.
- **Reduced RBC Count:** The total RBC count may be diminished in IDA, which impairs the blood's capacity to transport oxygen to ischemic areas of the brain.
- **Microcytic Hypochromic RBCs:** These abnormal red blood cells are a hallmark of iron deficiency and can further compromise the efficiency of oxygen delivery.
- **Altered Hematocrit and MCV:** Hematocrit (the proportion of blood volume occupied by red blood cells) may be reduced, while mean corpuscular volume (MCV) may show a decrease, indicating microcytic anemia typical of iron deficiency.

Therapeutic Correction: The management of acute stroke in the presence of IDA requires an integrated therapeutic approach. The correction of iron deficiency is paramount to improve peripheral erythron parameters and optimize patient outcomes.

1. **Iron Supplementation:** Oral or intravenous iron supplementation is the primary method for correcting iron deficiency. Oral iron salts (such as ferrous sulfate) are commonly prescribed, but in cases of severe anemia or gastrointestinal intolerance, intravenous iron preparations may be preferred. Correcting iron deficiency can improve hemoglobin levels and RBC production, potentially enhancing oxygen delivery to ischemic brain tissue.
2. **Monitoring and Adjusting Hematologic Parameters:** Regular monitoring of erythron parameters (hemoglobin, RBC count, hematocrit, MCV) is essential to assess the effectiveness of treatment. Hemoglobin levels should be monitored closely, aiming to achieve a target within normal ranges. Optimizing these parameters can reduce the burden of anemia, improve general well-being, and support recovery following stroke.
3. **Comprehensive Stroke Management:** Besides addressing anemia, it is crucial to manage the underlying causes of stroke, whether ischemic or hemorrhagic. Antithrombotic therapy, blood pressure management, and neuroprotective measures should be employed in combination with iron therapy to improve overall patient outcomes. Early rehabilitation and stroke-specific care are vital for functional recovery.

4. **Nutritional Support:** Nutritional interventions may also be beneficial. In addition to iron supplements, ensuring adequate intake of other micronutrients like vitamin B12 and folic acid is important for erythropoiesis and optimal recovery from stroke.
5. **Addressing Underlying Causes of Iron Deficiency:** It is important to investigate and treat the underlying causes of iron deficiency. This may involve treating gastrointestinal bleeding, correcting malabsorption syndromes, or addressing other nutritional deficiencies.

Conclusion: In patients with acute stroke and concurrent iron deficiency anemia, peripheral erythron parameters are often altered, reflecting the reduced oxygen-carrying capacity of the blood and increased risk of ischemic damage. Timely and appropriate therapeutic correction of iron deficiency can significantly improve these parameters, optimize tissue oxygenation, and enhance stroke recovery. A multidisciplinary approach involving iron supplementation, stroke management, and nutritional support is critical to improving outcomes in this patient population.Future research should focus on the long-term effects of iron supplementation in stroke recovery and the potential for personalized approaches to therapy, considering individual variations in erythron response to treatment.

REFERENCES

1. Жалилов А. Х., Ачилова Ф. А. КОРРЕКЦИЯ ЖЕЛЕЗОДЕФИЦИТНОЙ АНЕМИИ ПРИ ОСТРОЙ ПНЕВМОНИИ У ДЕТЕЙ //Analysis of world scientific views International Scientific Journal. – 2024. – Т. 2. – №. 5. – С. 56-64.
2. Jalilov A. X., Achilova F. A., Islamov N. H. SEVORAN FOR THE TREATMENT OF PAPULOUS SQUAMOUS DERMATOSES //Modern Scientific Research International Scientific Journal. – 2024. – Т. 2. – №. 2. – С. 194-199.
3. Achilova F. A., Jalilov A. X., Islamov N. H. PYODERMA ASSOCIATED WITH ALLERGODERMATOSIS, ASSESSMENT OF THE QUALITY OF THERAPY //GOLDEN BRAIN. – 2024. – Т. 2. – №. 5. – С. 93-100.
4. Islamov N. H. et al. ENURESIS AND ITS COMPLICATIONS //Modern Scientific Research International Scientific Journal. – 2023. – Т. 1. – №. 7. – С. 229-235.
5. Islamov N. H., Achilova F. A., Jalilov A. X. TESTIK TORSIONINI DAVOLASHNING SAMARALI //Educational Research in Universal Sciences. – 2023. – Т. 2. – №. 14 SPECIAL. – С. 319-323.
6. Холматович Ж. А. СОСТОЯНИЕ ПЕРИФЕРИЧЕСКОГО ЭРИТРОНА В КЛИНИКЕ ОСТРОЙ ПНЕВМОНИИ НА ФОНЕ ЖЕЛЕЗОДЕФИЦИТНОЙ АНЕМИИ. – 2023.
7. Эрметов А. Т. и др. Результаты эмболизации маточных артерий у больных с миомой матки, осложненных кровотечением //Вестник экстренной медицины. – 2018. – №. 2. – С. 9-11.
8. Жалилов А. Х., Шарипов С. Ш. ИССЛЕДОВАНИЕ НОВЫХ ВИДОВ КАТАЛИЗАТОРОВ ДЛЯ СИНТЕЗА АЦЕТОНА //Вестник науки. – 2020. – Т. 2. – №. 10 (31). – С. 72-77.

9. Шакаров Ф. и др. Бронхообструктивный синдром у детей //Журнал вестник врача. – 2011. – Т. 1. – №. 1. – С. 177-183.
10. Smiyan O. et al. MODERN VIEW FROM UKRAINE ON ETIOLOGY, PATHOGENESIS AND CLINICAL-DIAGNOSTIC ASPECTS OF COMMUNITY-ACQUIRED PNEUMONIA IN CHILDREN //Eastern Ukrainian Medical Journal. – 2023. – Т. 11. – №. 4. – С. 360-374.
11. Хайдарова, С. Х., Жалилов, А. Х., Ачилова, Ф. А., & Джалолов, Д. А. (2021). Оценка иммунного статуса и показателей биомаркеров воспаления у детей с внебольничной пневмонией. *Доктор ахборотномаси. Самарканд*.
12. Жалилов А. Х. Состояние периферического эритрона в клинике острой пневмонии на фоне железодефицитной анемии //Gospodarka i Innowacje. – 2023. – Т. 36. – С. 160-167.
13. Islamov N. H. et al. Ultrasound Picture of the Case of Liver Echinococcosis //Academicia Globe. – 2021. – Т. 2. – №. 05. – С. 98-103.
14. Жалилов А. Х., Ачилова Ф. А. СОСТОЯНИЕ ПОКАЗАТЕЛЕЙ МОРФОСТРУКТУРЫ ЭРИТРОЦИТАРНОЙ СИСТЕМЫ У ДЕТЕЙ ПРИ ОСТРОЙ ПНЕВМОНИИ //World of Scientific news in Science. – 2024. – Т. 2. – №. 5. – С. 94-107.
15. Жалилов А., Ачилова Ф., Хайдарова С. Показатели периферического эритрона при железодефицитной анемии у детей //Журнал гепато-гастроэнтерологических исследований. – 2021. – Т. 2. – №. 3. – С. 109-114.
16. Hikmatovich I. N., Xolmatovich J. A., Axtamovna A. F. O'SMIRLARDAGI VULGAR ACNE KASSALIGINI KOMPLEKS DAVOLASHNI ISHLAB CHIQISH VA SAMARADORLIKNI ANIQLASH //BARQARORLIK VA YETAKCHI TADQIQOTLAR ONLAYN ILMIY JURNALI. – 2022. – С. 323-326.
17. Kh J. A., Sh M. U., Achilova F. A. The state of the erythron system in acute pneumonia in children. – 2022.
18. Nizomiddinovich T. F. et al. EXPERIMENTAL MYOCARDIAL INFARCTION LDH BILAN CORRECTION OF NATHIJALARI: Yangi O'zbekiston taraqqiyotida tadqiqotlarni o'rni va rivojlanish omillari //Yangi O'zbekiston taraqqiyotida tadqiqotlarni o'rni va rivojlanish omillari. – 2024. – Т. 6. – №. 1. – С. 63-68.
19. Nizomiddinovich T. F. et al. QON TOMIR KASALIKLARIDA ENOSNING O'RNI: Yangi O'zbekiston taraqqiyotida tadqiqotlarni o'rni va rivojlanish omillari //Yangi O'zbekiston taraqqiyotida tadqiqotlarni o'rni va rivojlanish omillari. – 2024. – Т. 6. – №. 1. – С. 56-62.
20. Sh, Xushnazarov Z., L. Kenjayeva, and F. N. Toshboyev. "PIRRILO [2, 3-D] PIRIMIDINLARNING BIOLOGIK FAOLLIGI." *TADQIQOTLAR. UZ* 39.5 (2024): 30-35.
21. Sh X. Z., Toshboyev F. N., Izatullayev S. A. PIRIMIDIN HALQASI ISHTIROKIDA SINTEZ VA PIRIMIDINNING BIOLOGIK FAOLLIGI //TADQIQOTLAR. UZ. – 2024. – Т. 38. – №. 5. – С. 28-34.

22. Toshboyev F. N., Tashanov O. S., Izatullayev S. A. Oziqa tarkibidagi spirtlarni oksidlanish jarayonini matimatik modilashtirish orqali xisoblash //golden brain. – 2023. – T. 1. – №. 28. – C. 117-120.
23. Toshboyev F. N., Iskandar o'g'li M. S., Fayzullo o'g'li S. S. XITOZAN VA SUT ZARDOBI BILAN OZIQLANTIRILGAN BROYLER JO'JALARINING BIOKIMYOVIY KO'RSATKICHLARI //Ta'lim innovatsiyasi va integratsiyasi. – 2024. – T. 14. – №. 1. – C. 78-80.
24. Toshboyev F. N. et al. SELECTIVITY OF YKS CATALYZATION IN THE SYNTHESIS OF VINYL ACETATE FROM ETHYLENE AND ACETIC ACID //World of Scientific news in Science. – 2023. – T. 1. – №. 2. – C. 31-35.
25. Nizomiddinovich T. F., Abdimannonovich I. S., Zoirovich A. J. Of organic substances by thin layer chromatographic method //Ta'lim innovatsiyasi va integratsiyasi. – 2024. – T. 14. – №. 1. – C. 70-72.
26. Toshboyev F. N., Bobokulova S. A., Suyunova M. O. Synthesis of vinyl acetate from acetylene with the participation of a nanocatalyst and study of its kinetics //World of Scientific news in Science. – 2024. – T. 2. – №. 2. – C. 11-18.
27. Тошбоев Ф. Н., Ахмадов Д. З., Эшанкулов З. А. Динамика нитрергической системы при гиперхолестеринемии //Ta'lim innovatsiyasi va integratsiyasi. – 2024. – T. 14. – №. 1. – C. 73-77.
28. Baykulov A. K., Toshboyev F. N., Akhmadov J. Z. BIOCHEMICAL AND PHYSIOLOGICAL CHANGES IN PARASITE PARAMETERS IN THE HOST-PARASITE RELATIONSHIP //Modern Scientific Research International Scientific Journal. – 2024. – T. 2. – №. 1. – C. 257-262.
29. Xudoyberdiyev I. I. et al. Etilen va sirka kislotadan vinilasetat olinishi jarayonining fizik-kimyoviy asoslari //Zamonaviy fan va ta'lim yangiliklari xalqaro ilmiy jurnal. – 2023. – T. 1. – №. 5. – C. 59-62.
30. Toshboyev F. N., Akhmadov J. Z., Eshonqulov Z. A. ETHYLENE OXYACETYLATION REACTION KINETICS LEARN //Modern Scientific Research International Scientific Journal. – 2024. – T. 2. – №. 1. – C. 253-256.
31. Тошбоев Ф. Н., Анваров Т. О., Изатуллаев С. А. ОПРЕДЕЛЕНИЕ РН СРЕДЫ ЛЕКАРСТВЕННЫХ ВЕЩЕСТВ ПОТЕНЦИОМЕТРИЧЕСКИМ МЕТОДОМ //World of Scientific news in Science. – 2023. – T. 1. – №. 1. – C. 166-169.
32. Baxodirovich S. S., Nizomiddinovich T. F., Ergashboevna E. M. GAZ ARALASHMALARINI NAZORAT QILIShNING TERMOKATALITIK USULI //Journal of Universal Science Research. – 2024. – T. 2. – №. 2. – C. 276-281.
33. Байкулов А. К., Муртазаева Н. К., Тошбоев Ф. Н. ДИНАМИКА ВЛИЯНИЯ ЛАКТАТДЕГИДРОГЕНАЗЫ ПРИ ЭКСПЕРИМЕНТАЛЬНОМ ИНФАРКТЕ МИОКАРДА //World of Scientific news in Science. – 2024. – T. 2. – №. 3. – C. 244-251.