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Elite *Journal of Scientific Research and Review*. Volume 2 issue 3(2024), Pp. 49-68
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Impact of Blood Transfusion on Respiratory Function in HIV-Positive Pediatric Severe Malaria Cases: A Review

[*]Emmanuel Ifeanyi Obeagu[1] and Getrude Uzoma Obeagu[2]

[1]Department of Medical Laboratory Science, Kampala International University, Uganda

[2]School of Nursing Science, Kampala International University, Uganda.

[*]Corresponding authour: Emmanuel Ifeanyi Obeagu, Department of Medical Laboratory Science, Kampala International University, Uganda, emmanuelobeagu@yahoo.com, ORCID: 0000-0002-4538-0161

Abstract

Blood transfusion is a crucial intervention in the management of severe malaria-associated anemia, aiming to improve tissue perfusion and support recovery. However, in pediatric patients with severe malaria and concurrent HIV infection, the impact of blood transfusion on respiratory function remains a significant concern. Transfusion-related acute lung injury (TRALI) represents a severe complication of blood transfusion, characterized by acute respiratory distress and pulmonary edema. This comprehensive review examines the impact of blood transfusion on respiratory function in HIV-positive pediatric severe malaria cases, focusing on the risk factors, pathophysiology, clinical manifestations, diagnosis, management, and preventive strategies for TRALI. By synthesizing current evidence and clinical insights, this review aims to provide a comprehensive understanding of the impact of blood transfusion on respiratory function in HIV-positive pediatric severe malaria cases, guiding clinical practice and future research efforts.

Keywords*: Blood transfusion, respiratory function, HIV-positive, pediatric, severe malaria, transfusion-related acute lung injury, TRALI*

Introduction

Severe malaria and HIV co-infection present significant challenges in pediatric healthcare, particularly in regions where both diseases are endemic. Among the myriad complications of severe malaria, anemia stands out as a common and potentially life-threatening complication, necessitating blood transfusion in many cases to prevent mortality. However, in pediatric patients

Citation: Obeagu EI, Obeagu GU. Impact of Blood Transfusion on Respiratory Function in HIV-Positive Pediatric Severe Malaria Cases: A Review. *Elite Journal of Scientific Research and Review*, 2024; 2(3): 49-68

with concurrent HIV infection, the impact of blood transfusion on respiratory function raises concerns, particularly regarding the risk of transfusion-related acute lung injury (TRALI). TRALI is a severe complication characterized by acute respiratory distress and pulmonary edema, often occurring within hours of transfusion. Understanding the implications of blood transfusion on respiratory function in HIV-positive pediatric severe malaria cases is crucial for optimizing clinical management and improving patient outcomes. The epidemiology of severe malaria and HIV co-infection varies geographically, with sub-Saharan Africa bearing the highest burden of both diseases. In this region, pediatric patients are disproportionately affected, facing higher risks of mortality and long-term morbidity. Blood transfusion plays a critical role in the management of severe malaria-associated anemia, yet its impact on respiratory function in the context of HIV co-infection remains poorly understood. Clarifying the relationship between blood transfusion and respiratory function in this vulnerable population is essential for guiding clinical practice and improving transfusion safety.[1-30]

The pathophysiology of TRALI involves a complex interplay between transfused blood products and patient-specific factors, resulting in endothelial damage and pulmonary inflammation. Pediatric patients with severe malaria and HIV co-infection may have underlying immune dysregulation and endothelial dysfunction, predisposing them to TRALI development. Additionally, transfusion-related factors such as donor antibodies and bioactive substances can further exacerbate the risk of TRALI in this population. Understanding the pathophysiological mechanisms underlying TRALI in HIV-positive pediatric severe malaria cases is crucial for developing targeted interventions and preventive strategies. Clinical manifestations of TRALI include acute onset of respiratory distress, hypoxemia, and bilateral pulmonary infiltrates on imaging, mirroring those of other respiratory conditions. However, diagnosing TRALI in pediatric severe malaria cases with HIV co-infection can be challenging due to overlapping symptoms with underlying diseases and transfusion-related complications. Differential diagnoses such as transfusion-associated circulatory overload (TACO), anaphylactic reactions, and infectious causes of acute respiratory distress syndrome (ARDS) must be considered, highlighting the importance of accurate diagnosis and prompt intervention. The management and prevention of TRALI in pediatric patients with severe malaria and HIV co-infection require a multidisciplinary approach that integrates supportive care measures, judicious transfusion practices, and vigilant monitoring for adverse events. Strategies for preventing TRALI include careful donor selection, leukoreduction of blood products, and adherence to transfusion guidelines. By addressing the challenges associated with blood transfusion and respiratory function in HIV-positive pediatric severe malaria cases, healthcare providers can optimize patient care and improve outcomes in this vulnerable population.[31-60]

Epidemiology and Risk Factors

The epidemiology of transfusion-related acute lung injury (TRALI) in HIV-positive pediatric severe malaria cases is influenced by various factors, including patient demographics, transfusion practices, and donor characteristics. Pediatric patients with severe malaria and HIV co-infection represent a vulnerable population with unique immunological and endothelial characteristics that

may predispose them to TRALI development following blood transfusion. In regions where severe malaria and HIV are endemic, pediatric patients are disproportionately affected, with higher rates of morbidity and mortality compared to adults. The prevalence of anemia, a common complication of severe malaria, necessitates frequent blood transfusions in this population to prevent mortality. However, the prevalence of TRALI in HIV-positive pediatric severe malaria cases is not well-established, partly due to underreporting and variability in diagnostic criteria. Risk factors for TRALI development in pediatric patients with severe malaria and HIV co-infection include both transfusion-related factors and patient-specific factors. Transfusion-related risk factors include the presence of donor-derived antibodies or bioactive substances in transfused blood products, such as human leukocyte antigen (HLA) and human neutrophil antigen (HNA) antibodies. These factors can interact with patient-specific factors, such as underlying immune dysregulation and endothelial dysfunction, to induce an inflammatory response and endothelial damage in the pulmonary vasculature, leading to TRALI development. Pediatric patients with severe malaria and HIV co-infection may have heightened immune responses and endothelial dysfunction, predisposing them to TRALI following blood transfusion. Additionally, factors such as the volume and type of blood products transfused, the presence of comorbidities, and the underlying severity of illness can further increase the risk of TRALI in this population. Understanding the epidemiology and risk factors associated with TRALI in HIV-positive pediatric severe malaria cases is essential for identifying high-risk patients, implementing preventive measures, and optimizing transfusion practices to improve patient safety.[61-100]

Pathophysiology

The pathophysiology of transfusion-related acute lung injury (TRALI) in HIV-positive pediatric severe malaria cases involves a complex interplay between transfused blood products and patient-specific factors, leading to endothelial damage, pulmonary inflammation, and acute respiratory distress. TRALI is thought to result from a two-hit mechanism, wherein transfusion of blood products containing donor-derived antibodies or bioactive substances interacts with patient-specific factors to induce an inflammatory response in the pulmonary vasculature. In severe malaria and HIV co-infection, pediatric patients may have underlying immunological and endothelial dysfunction, predisposing them to TRALI development. Malaria infection can lead to systemic inflammation, endothelial activation, and microvascular sequestration of infected erythrocytes, further exacerbating endothelial injury. HIV infection, on the other hand, is associated with immune dysregulation, endothelial dysfunction, and increased susceptibility to inflammatory responses. Transfusion-related factors such as donor antibodies against human leukocyte antigen (HLA) or human neutrophil antigen (HNA) can trigger an immune response in the recipient, leading to endothelial activation and release of inflammatory mediators. These mediators, including cytokines, chemokines, and reactive oxygen species, contribute to endothelial damage, increased vascular permeability, and recruitment of neutrophils to the pulmonary vasculature. Neutrophil activation and sequestration within the pulmonary microvasculature play a central role in the pathogenesis of TRALI, leading to further endothelial damage and pulmonary inflammation. Neutrophils release proteases, reactive oxygen species, and pro-inflammatory cytokines, exacerbating tissue injury and impairing gas exchange. Endothelial dysfunction and

disruption of the alveolar-capillary barrier result in increased vascular permeability, pulmonary edema, and impaired oxygenation, culminating in acute respiratory distress and respiratory failure.[1-30]

Clinical Manifestations and Diagnosis

Transfusion-related acute lung injury (TRALI) presents with acute onset of respiratory distress, hypoxemia, and bilateral pulmonary infiltrates on imaging, often occurring within hours of blood transfusion. In HIV-positive pediatric severe malaria cases, distinguishing TRALI from other respiratory complications can be challenging due to overlapping symptoms and underlying disease processes. However, careful clinical evaluation and diagnostic workup are essential for accurate diagnosis and timely management. Clinical manifestations of TRALI in pediatric patients with severe malaria and HIV co-infection may include dyspnea, tachypnea, cyanosis, and respiratory distress. These symptoms can range from mild to severe, depending on the severity of lung injury and the underlying clinical condition of the patient. Additionally, signs of systemic inflammation, such as fever, tachycardia, and leukocytosis, may be present, reflecting the inflammatory response triggered by TRALI. Diagnostic criteria for TRALI include acute onset of respiratory distress within 6 hours of blood transfusion, hypoxemia, bilateral pulmonary infiltrates on chest imaging, and no evidence of cardiogenic pulmonary edema. However, differentiating TRALI from other causes of acute respiratory distress, such as transfusion-associated circulatory overload (TACO), anaphylactic reactions, and infectious pneumonia, requires a comprehensive evaluation. Diagnostic workup for TRALI may include chest radiography, arterial blood gas analysis, and laboratory testing. Chest radiography typically reveals bilateral pulmonary infiltrates consistent with non-cardiogenic pulmonary edema. Arterial blood gas analysis may demonstrate hypoxemia with respiratory alkalosis, reflecting impaired gas exchange and compensatory hyperventilation. Laboratory tests such as complete blood count, coagulation profile, and inflammatory markers may be obtained to assess for evidence of systemic inflammation and rule out alternative diagnoses. Additional diagnostic modalities, such as echocardiography, pulmonary function tests, and bronchoscopy with bronchoalveolar lavage (BAL), may be considered in select cases to further evaluate respiratory function and exclude alternative diagnoses. BAL fluid analysis showing a predominance of neutrophils and elevated protein levels can support the diagnosis of TRALI. However, these procedures may not be feasible or readily available in resource-limited settings where severe malaria and HIV co-infection are endemic.[131-160]

Management and Prevention

The management and prevention of transfusion-related acute lung injury (TRALI) in HIV-positive pediatric severe malaria cases involve a multifaceted approach aimed at supportive care, respiratory support, avoidance of further transfusions, and implementation of preventive strategies. Supportive care measures are essential in managing TRALI and include supplemental oxygen therapy to maintain adequate oxygenation and respiratory support as needed. Mechanical ventilation may be required in severe cases of TRALI to provide optimal respiratory support and improve gas exchange. Positive end-expiratory pressure (PEEP) can be utilized to recruit collapsed

alveoli and improve lung compliance, while low tidal volume ventilation strategies aim to minimize ventilator-associated lung injury. Fluid management is crucial in the management of TRALI, with a focus on avoiding fluid overload and optimizing cardiac preload. Diuretics may be used cautiously to reduce pulmonary edema and improve respiratory function in patients with evidence of fluid overload. Close monitoring of hemodynamic parameters, electrolyte balance, and renal function is essential to prevent complications associated with fluid management.[161-170]

Avoidance of further transfusions is paramount in managing TRALI in HIV-positive pediatric severe malaria cases. Transfusion should only be considered if absolutely necessary and with careful consideration of the risks and benefits. When transfusion is deemed necessary, leukoreduced blood products should be used to minimize the risk of TRALI development. Additionally, close monitoring for signs of respiratory distress and hemodynamic instability is essential during and after transfusion to detect and manage TRALI promptly. Preventing TRALI in pediatric patients with severe malaria and HIV co-infection involves implementing strategies to minimize transfusion-related risks and optimize patient safety. These strategies include careful donor selection, leukoreduction of blood products, and adherence to transfusion guidelines and protocols. Screening blood donors for known risk factors associated with TRALI, such as HLA and HNA antibodies, can help reduce the risk of TRALI development. Furthermore, healthcare providers should educate patients, families, and staff about the signs and symptoms of TRALI and the importance of reporting adverse events associated with transfusion. By raising awareness and implementing targeted interventions, healthcare facilities can enhance transfusion safety and minimize the risk of TRALI in pediatric patients with severe malaria and HIV co-infection.[171-180]

Challenges and Future Directions

Despite advancements in transfusion medicine, several challenges persist in managing transfusion-related acute lung injury (TRALI) in HIV-positive pediatric severe malaria cases, necessitating ongoing research and multidisciplinary collaboration to address these challenges effectively.

One significant challenge is the lack of specific diagnostic criteria and biomarkers for TRALI, particularly in resource-limited settings where access to advanced diagnostic modalities is limited. Improved diagnostic tools and standardized criteria are needed to facilitate early recognition and timely intervention. Biomarkers such as brain natriuretic peptide (BNP) and interleukin-6 (IL-6) have shown promise in diagnosing TRALI but lack specificity and require further validation in pediatric populations. Another challenge is underreporting and variability in transfusion-related adverse events, which hinder accurate estimation of the true incidence and prevalence of TRALI in HIV-positive pediatric severe malaria cases. Enhanced surveillance systems and comprehensive reporting mechanisms are needed to capture accurate data on TRALI cases, identify risk factors, and assess the impact of preventive interventions. The complex pathophysiology of TRALI in the context of severe malaria and HIV co-infection requires further investigation to elucidate the underlying mechanisms and identify potential therapeutic targets. Research efforts should focus on understanding the interactions between transfused blood products, host immune responses, and underlying disease processes that contribute to TRALI development. Animal models and in vitro

studies can provide valuable insights into the pathophysiology of TRALI and inform the development of targeted interventions. Addressing transfusion-related risks and optimizing transfusion practices in pediatric patients with severe malaria and HIV co-infection requires a multidisciplinary approach involving collaboration among healthcare providers, transfusion medicine specialists, and researchers. Education and training programs for healthcare professionals on transfusion safety, recognition of TRALI, and appropriate management strategies are essential for improving patient outcomes and reducing the incidence of TRALI in this population.[181-194]

Conclusion

The impact of transfusion-related acute lung injury (TRALI) in HIV-positive pediatric severe malaria cases underscores the complexities and challenges in managing blood transfusion therapy in this vulnerable population. TRALI represents a significant complication of transfusion, characterized by acute respiratory distress and pulmonary edema, with potentially life-threatening consequences. Despite advancements in transfusion medicine, several challenges remain, including the lack of specific diagnostic criteria, underreporting of adverse events, and the complex pathophysiology of TRALI in the context of severe malaria and HIV co-infection.

References

1. Alonso PL, Tanner M. Public health challenges and prospects for malaria control and elimination. Nature medicine. 2013;19(2):150-155.
2. Muhammad F, Abdulkareem JH, Chowdhury AA. Major public health problems in Nigeria: a review. South East Asia Journal of Public Health. 2017;7(1):6-11.
3. González R, Ataíde R, Naniche D, Menéndez C, Mayor A. HIV and malaria interactions: where do we stand? Expert review of anti-infective therapy. 2012 Feb 1;10(2):153-65.
4. De Baets AJ, Bulterys M, Abrams EJ, Kankassa C, Pazvakavambwa IE. Care and treatment of HIV-infected children in Africa: issues and challenges at the district hospital level. The Pediatric infectious disease journal. 2007;26(2):163-173.
5. Bhutta ZA, Sommerfeld J, Lassi ZS, Salam RA, Das JK. Global burden, distribution, and interventions for infectious diseases of poverty. Infectious diseases of poverty. 2014; 3:1-7.
6. Crawley J, Chu C, Mtove G, Nosten F. Malaria in children. The Lancet. 2010;375(9724):1468-1481.
7. Obeagu EI, Obeagu GU, Chukwueze CM, Ikpenwa JN, Ramos GF. EVALUATION OF PROTEIN C, PROTEIN S AND FIBRINOGEN OF PREGNANT WOMEN WITH MALARIA IN OWERRI METROPOLIS. Madonna University journal of Medicine and Health Sciences ISSN: 2814-3035. 2022;2(2):1-9.
8. Obeagu EI, Ibeh NC, Nwobodo HA, Ochei KC, Iwegbulam CP. Haematological indices of malaria patients coinfected with HIV in Umuahia. Int. J. Curr. Res. Med. Sci. 2017;3(5):100-104.
9. Opeyemi AA, Obeagu EI. Regulations of malaria in children with human immunodeficiency virus infection: A review. Medicine. 2023;102(46): e36166.

10. Obeagu EI, Chijioke UO, Ekelozie IS. Malaria rapid diagnostic test (RDTs). Ann Clin Lab Res. 2018;6(4):275.
11. Ogomaka IA, Obeagu EI. Methods of Breast Feeding as Determinants of Malaria Infections among Babies in IMO State, Nigeria. International Journal of Medical Science and Dental Research. 2019;2(01):17-24.
12. Obeagu EI, Obeagu GU. Hematological Changes Following Blood Transfusion in Young Children with Severe Malaria and HIV: A Critical Review. Elite Journal of Laboratory Medicine. 2024;2(1):33-45.
13. Obeagu EI, Obeagu GU. Hematological Changes Following Blood Transfusion in Young Children with Severe Malaria and HIV: A Critical Review. Elite Journal of Laboratory Medicine. 2024;2(1):33-45.
14. Obeagu EI, Obeagu GU. The Role of Blood Transfusion Strategies in HIV Management: Current Insights and Future Directions. Elite Journal of Medicine. 2024;2(1):10-22.
15. Obeagu EI, Obeagu GU. Advances in Understanding the Impact of Blood Transfusion on Anemia Resolution in HIV-Positive Children with Severe Malaria: A Comprehensive Review. Elite Journal of Haematology. 2024;2(1):26-41.
16. Obeagu EI, Babar Q, Obeagu GU. Allergic blood Transfusion reaction: A Review. Int. J. Curr. Res. Med. Sci. 2021;7(5):25-33.
17. Obeagu EI, Okwuanaso CB, Edoho SH, Obeagu GU. Under-nutrition among HIV-exposed Uninfected Children: A Review of African Perspective. Madonna University journal of Medicine and Health Sciences. 2022;2(3):120-127.
18. Obeagu EI. A Review of Challenges and Coping Strategies Faced by HIV/AIDS Discordant Couples. Madonna University journal of Medicine and Health Sciences. 2023 ;3(1):7-12. https://madonnauniversity.edu.ng/journals/index.php/medicine/article/view/91.
19. Obeagu EI, Obeagu GU. An update on premalignant cervical lesions and cervical cancer screening services among HIV positive women. J Pub Health Nutri. 2023; 6 (2). 2023; 141:1-2. links/63e538ed64252375639dd0df/An-update-on-premalignant-cervical-lesions-and-cervical-cancer-screening-services-among-HIV-positive-women.pdf.
20. Ezeoru VC, Enweani IB, Ochiabuto O, Nwachukwu AC, Ogbonna US, Obeagu EI. Prevalence of Malaria with Anaemia and HIV status in women of reproductive age in Onitsha, Nigeria. Journal of Pharmaceutical Research International. 2021;33(4):10-19.
21. Omo-Emmanuel UK, Chinedum OK, Obeagu EI. Evaluation of laboratory logistics management information system in HIV/AIDS comprehensive health facilities in Bayelsa State, Nigeria. Int J Curr Res Med Sci. 2017;3(1): 21-38.DOI: 10.22192/ijcrms.2017.03.01.004
22. Obeagu EI, Obeagu GU. An update on survival of people living with HIV in Nigeria. J Pub Health Nutri. 2022; 5 (6). 2022;129. links/645b4bfcf3512f1cc5885784/An-update-on-survival-of-people-living-with-HIV-in-Nigeria.pdf.
23. Offie DC, Obeagu EI, Akueshi C, Njab JE, Ekanem EE, Dike PN, Oguh DN. Facilitators and barriers to retention in HIV care among HIV infected MSM attending Community Health Center Yaba, Lagos Nigeria. Journal of Pharmaceutical Research International. 2021;33(52B):10-19.

Citation: Obeagu EI, Obeagu GU. Impact of Blood Transfusion on Respiratory Function in HIV-Positive Pediatric Severe Malaria Cases: A Review. *Elite Journal of Scientific Research and Review*, 2024; 2(3): 49-68

24. Obeagu EI, Ogbonna US, Nwachukwu AC, Ochiabuto O, Enweani IB, Ezeoru VC. Prevalence of Malaria with Anaemia and HIV status in women of reproductive age in Onitsha, Nigeria. Journal of Pharmaceutical Research International. 2021;33(4):10-19.
25. Odo M, Ochei KC, Obeagu EI, Barinaadaa A, Eteng UE, Ikpeme M, Bassey JO, Paul AO. TB Infection Control in TB/HIV Settings in Cross River State, Nigeria: Policy Vs Practice. Journal of Pharmaceutical Research International. 2020;32(22):101-119.
26. Obeagu EI, Eze VU, Alaeboh EA, Ochei KC. Determination of haematocrit level and iron profile study among persons living with HIV in Umuahia, Abia State, Nigeria. J BioInnovation. 2016; 5:464-471. links/592bb4990f7e9b9979a975cf/DETERMINATION-OF-HAEMATOCRIT-LEVEL-AND-IRON-PROFILE-STUDY-AMONG-PERSONS-LIVING-WITH-HIV-IN-UMUAHIA-ABIA-STATE-NIGERIA.pdf.
27. Obeagu EI, Obeagu GU, Egba SI, Emeka-Obi OR. Combatting Anemia in Pediatric Malaria: Effective Management Strategies. Int. J. Curr. Res. Med. Sci. 2023;9(11):1-7.
28. Hassan AO, Oso OV, Obeagu EI, Adeyemo AT. Malaria Vaccine: Prospects and Challenges. Madonna University journal of Medicine and Health Sciences ISSN: 2814-3035. 2022;2(2):22-40.
29. Obeagu EI, Ogbonna US, Nwachukwu AC, Ochiabuto O, Enweani IB, Ezeoru VC. Prevalence of Malaria with Anaemia and HIV status in women of reproductive age in Onitsha, Nigeria. Journal of Pharmaceutical Research International. 2021;33(4):10-9.
30. Obeagu EI, Busari AI, Uduchi IO, Ogomaka IA, Ibekwe AM, Vincent CC, Chijioke UO, Okafor CJ, Okoroiwu HU, Adike CN. Age-Related Haematological Variations in Patients with Asymptomatic Malaria in Akure, Ondo State, Nigeria. Journal of Pharmaceutical Research International. 2021;33(42B):218-24.
31. Ogomaka IA, Obeagu EI. Malaria in Pregnancy Amidst Possession of Insecticide Treated Bed Nets (ITNs) in Orlu LGA of Imo State, Nigeria. Journal of Pharmaceutical Research International. 2021;33(41B):380-386.
32. Obeagu EI, Ubosi NI, Uzoma G. Maternal Hemorrhage and Blood Transfusions: Safeguarding Pregnancy Health. Int. J. Curr. Res. Chem. Pharm. Sci. 2023;10(11):26-35.
33. Obeagu EI, Obeagu GU. Transfusion-Related Complications in Children Under 5 with Coexisting HIV and Severe Malaria: A Review. Int. J. Curr. Res. Chem. Pharm. Sci. 2024;11(2):9-19.
34. Obeagu EI, Obeagu GU. Synergistic Effects of Blood Transfusion and HIV in Children Under 5 Years with Severe Malaria: A Review. Elite Journal of HIV. 2024;2(1):31-50.
35. Obeagu EI, Anyiam AF, Obeagu GU. Managing Anemia in HIV through Blood Transfusions: Clinical Considerations and Innovations. Elite Journal of HIV. 2024;2(1):16-30.
36. Obeagu EI, Obeagu GU. Transfusion Therapy in HIV: Risk Mitigation and Benefits for Improved Patient Outcomes. Sciences. 2024;4(1):32-37.
37. Ifeanyi OE, Obeagu GU. The values of prothrombin time among HIV positive patients in FMC owerri. International Journal of Current Microbiology and Applied Sciences. 2015;4(4):911-916. https://www.academia.edu/download/38320140/Obeagu_Emmanuel_Ifeanyi_and_Obeagu__Getrude_Uzoma2.EMMA1.pdf.

38. Izuchukwu IF, Ozims SJ, Agu GC, Obeagu EI, Onu I, Amah H, Nwosu DC, Nwanjo HU, Edward A, Arunsi MO. Knowledge of preventive measures and management of HIV/AIDS victims among parents in Umuna Orlu community of Imo state Nigeria. Int. J. Adv. Res. Biol. Sci. 2016;3(10): 55-65.DOI; 10.22192/ijarbs.2016.03.10.009
39. Chinedu K, Takim AE, Obeagu EI, Chinazor UD, Eloghosa O, Ojong OE, Odunze U. HIV and TB co-infection among patients who used Directly Observed Treatment Short-course centres in Yenagoa, Nigeria. IOSR J Pharm Biol Sci. 2017;12(4):70-75. links/5988ab6d0f7e9b6c8539f73d/HIV-and-TB-co-infection-among-patients-who-used-Directly-Observed-Treatment-Short-course-centres-in-Yenagoa-Nigeria.pdf
40. Oloro OH, Oke TO, Obeagu EI. Evaluation of Coagulation Profile Patients with Pulmonary Tuberculosis and Human Immunodeficiency Virus in Owo, Ondo State, Nigeria. Madonna University journal of Medicine and Health Sciences. 2022;2(3):110-119.
41. Nwosu DC, Obeagu EI, Nkwocha BC, Nwanna CA, Nwanjo HU, Amadike JN, Elendu HN, Ofoedeme CN, Ozims SJ, Nwankpa P. Change in Lipid Peroxidation Marker (MDA) and Non enzymatic Antioxidants (VIT C & E) in HIV Seropositive Children in an Urban Community of Abia State. Nigeria. J. Bio. Innov. 2016;5(1):24-30. links/5ae735e9a6fdcc5b33eb8d6a/CHANGE-IN-LIPID-PEROXIDATION-MARKER-MDAAND-NON-ENZYMATIC-ANTIOXIDANTS-VIT-C-E-IN-HIV-SEROPOSITIVE-CHILDREN-IN-AN-URBAN-COMMUNITY-OF-ABIA-STATE-NIGERIA.pdf.
42. Ifeanyi OE, Obeagu GU, Ijeoma FO, Chioma UI. The values of activated partial thromboplastin time (APTT) among HIV positive patients in FMC Owerri. Int J Curr Res Aca Rev. 2015; 3:139-144. https://www.academia.edu/download/38320159/Obeagu_Emmanuel_Ifeanyi3__et_al.IJCRAR.pdf.
43. Obiomah CF, Obeagu EI, Ochei KC, Swem CA, Amachukwu BO. Hematological indices o HIV seropositive subjects in Nnamdi Azikiwe University teaching hospital (NAUTH), Nnewi. Ann Clin Lab Res. 2018;6(1):1-4. links/5aa2bb17a6fdccd544b7526e/Haematological-Indices-of-HIV-Seropositive-Subjects-at-Nnamdi-Azikiwe.pdf
44. Omo-Emmanuel UK, Ochei KC, Osuala EO, Obeagu EI, Onwuasoanya UF. Impact of prevention of mother to child transmission (PMTCT) of HIV on positivity rate in Kafanchan, Nigeria. Int. J. Curr. Res. Med. Sci. 2017;3(2): 28-34.DOI: 10.22192/ijcrms.2017.03.02.005
45. Aizaz M, Abbas FA, Abbas A, Tabassum S, Obeagu EI. Alarming rise in HIV cases in Pakistan: Challenges and future recommendations at hand. Health Science Reports. 2023;6(8):e1450.
46. Obeagu EI, Amekpor F, Scott GY. An update of human immunodeficiency virus infection: Bleeding disorders. J Pub Health Nutri. 2023; 6 (1). 2023;139. links/645b4a6c2edb8e5f094d9bd9/An-update-of-human-immunodeficiency-virus-infection-Bleeding.pdf.

47. Obeagu EI, Babar Q, Uduchi IO, Ibekwe AM, Chijioke UO, Okafor CJ, Vincent CC. An Update on Transfusion Related Immunomodulation (TRIM) in a Time of COVID-19 Pandemic. Journal of Pharmaceutical Research International. 2021;33(42A):135-146.
48. Okoroiwu IL, Obeagu EI, Elemchukwu Q, Ochei KC, Christian GS. Frequency of Transfusion Reactions Following Compatible Cross Matching of Blood: A Study in Owerri Metropolis. International Journal of Current Research and Academic Review. 2015;3(1):155-160.
49. Obeagu EI, Oshim IO, Ochei KC, Obeagu GU. Iron and blood donation: A Review. Int. J. Curr. Res. Med. Sci. 2016;2(10):16-48.
50. Ogar CO, Okoroiwu HU, Obeagu EI, Etura JE, Abunimye DA. Assessment of blood supply and usage pre-and during COVID-19 pandemic: a lesson from non-voluntary donation. Transfusion Clinique et Biologique. 2021;28(1):68-72.
51. Anyiam AF, Arinze-Anyiam OC, Irondi EA, Obeagu EI. Distribution of ABO and rhesus blood grouping with HIV infection among blood donors in Ekiti State Nigeria. Medicine. 2023;102(47): e36342.
52. Ogbonna CO, Obeagu EI, Ufelle SA, Ogbonna LN. Evaluation of haematological alterations in children infected by Plasmodium falciparum Species in Enugu, Enugu State, Nigeria. Journal of Pharmaceutical Research International. 2021;33(1):38-45.
53. Okorie HM, Obeagu EI, Obarezi HC, Anyiam AF. Assessment of some inflammatory cytokines in malaria infected pregnant women in Imo State Nigeria. International Journal of Medical Science and Dental Research. 2019;2(1):25-36.
54. Ezeoru VC, Enweani IB, Ochiabuto O, Nwachukwu AC, Ogbonna US, Obeagu EI. Prevalence of Malaria with Anaemia and HIV status in women of reproductive age in Onitsha, Nigeria. Journal of Pharmaceutical Research International. 2021;33(4):10-19.
55. Okorie HM, Obeagu EI, Eze EN, Jeremiah ZA. Assessment of some haematological parameters in malaria infected pregnant women in Imo state Nigeria. Int. J. Curr. Res. Biol. Med. 2018;3(9):1-4.
56. Nwosu DC, Obeagu EI, Ezenwuba C, Agu GC, Amah H, Ozims SJ, Nwanjo HU, Edward A, Izuchukwu IF, Amadike JN, Nwagwu AJ. Antioxidant status of children with Plasmodium falciparum malaria in Owerri municipal council of Imo state. Int. J. Curr. Res. Chem. Pharm. Sci. 2016;3(8):40-46.
57. Obeagu EI, Scott GY, Amekpor F, Ofodile AC, Edoho SH, Ahamefula C. Prevention of New Cases of Human Immunodeficiency Virus: Pragmatic Approaches of Saving Life in Developing Countries. Madonna University journal of Medicine and Health Sciences. 2022;2(3):128-134. https://madonnauniversity.edu.ng/journals/index.php/medicine/article/view/86.
58. Walter O, Anaebo QB, Obeagu EI, Okoroiwu IL. Evaluation of Activated Partial Thromboplastin Time and Prothrombin Time in HIV and TB Patients in Owerri Metropolis. Journal of Pharmaceutical Research International. 2022:29-34.
59. Odo M, Ochei KC, Obeagu EI, Barinaadaa A, Eteng EU, Ikpeme M, Bassey JO, Paul AO. Cascade variabilities in TB case finding among people living with HIV and the use of IPT: assessment in three levels of care in cross River State, Nigeria. Journal of Pharmaceutical Research International. 2020;32(24):9-18.

60. Jakheng SP, Obeagu EI. Seroprevalence of human immunodeficiency virus based on demographic and risk factors among pregnant women attending clinics in Zaria Metropolis, Nigeria. J Pub Health Nutri. 2022; 5 (8). 2022;137. links/6317a6b1acd814437f0ad268/Seroprevalence-of-human-immunodeficiency-virus-based-on-demographic-and-risk-factors-among-pregnant-women-attending-clinics-in-Zaria-Metropolis-Nigeria.pdf.
61. Obeagu EI, Obeagu GU. A Review of knowledge, attitudes and socio-demographic factors associated with non-adherence to antiretroviral therapy among people living with HIV/AIDS. Int. J. Adv. Res. Biol. Sci. 2023;10(9):135-142.DOI: 10.22192/ijarbs.2023.10.09.015 links/6516faa61e2386049de5e828/A-Review-of-knowledge-attitudes-and-socio-demographic-factors-associated-with-non-adherence-to-antiretroviral-therapy-among-people-living-with-HIV-AIDS.pdf
62. Obeagu EI, Onuoha EC. Tuberculosis among HIV Patients: A review of Prevalence and Associated Factors. Int. J. Adv. Res. Biol. Sci. 2023;10(9):128-134.DOI: 10.22192/ijarbs.2023.10.09.014 links/6516f938b0df2f20a2f8b0e0/Tuberculosis-among-HIV-Patients-A-review-of-Prevalence-and-Associated-Factors.pdf.
63. Obeagu EI, Ibeh NC, Nwobodo HA, Ochei KC, Iwegbulam CP. Haematological indices of malaria patients coinfected with HIV in Umuahia. Int. J. Curr. Res. Med. Sci. 2017;3(5):100-104.DOI: 10.22192/ijcrms.2017.03.05.014 https://www.academia.edu/download/54317126/Haematological_indices_of_malaria_patients_coinfected_with_HIV.pdf
64. Jakheng SP, Obeagu EI, Abdullahi IO, Jakheng EW, Chukwueze CM, Eze GC, Essien UC, Madekwe CC, Madekwe CC, Vidya S, Kumar S. Distribution Rate of Chlamydial Infection According to Demographic Factors among Pregnant Women Attending Clinics in Zaria Metropolis, Kaduna State, Nigeria. South Asian Journal of Research in Microbiology. 2022;13(2):26-31.
65. Okorie HM, Obeagu Emmanuel I, Okpoli Henry CH, Chukwu Stella N. Comparative study of enzyme linked immunosorbent assay (Elisa) and rapid test screening methods on HIV, Hbsag, Hcv and Syphilis among voluntary donors in. Owerri, Nigeria. J Clin Commun Med. 2020;2(3):180-183.DOI: **DOI:** 10.32474/JCCM.2020.02.000137 links/5f344530458515b7291bd95f/Comparative-Study-of-Enzyme-Linked-Immunosorbent-Assay-ElISA-and-Rapid-Test-Screening-Methods-on-HIV-HBsAg-HCV-and-Syphilis-among-Voluntary-Donors-in-Owerri-Nigeria.pdf.
66. Ezugwu UM, Onyenekwe CC, Ukibe NR, Ahaneku JE, Onah CE, Obeagu EI, Emeje PI, Awalu JC, Igbokwe GE. Use of ATP, GTP, ADP and AMP as an Index of Energy Utilization and Storage in HIV Infected Individuals at NAUTH, Nigeria: A Longitudinal, Prospective, Case-Controlled Study. Journal of Pharmaceutical Research International. 2021;33(47A):78-84.
67. Obeagu EI. Blood Transfusion: A Powerful Process of Saving Anaemic Patients. EC Emergency Medicine and Critical Care. 2020;4(7):33-40.
68. Obeagu EI, Buhari HA. Implications of Blood Transfusion in Renal Disease Patients. Int. J. Curr. Res. Chem. Pharm. Sci. 2023;10(10):45-49.

69. Anyiam AF, Arinze-Anyiam OC, Omosigho PO, Ibrahim M, Irondi EA, Obeagu EI, Obi E. Blood Group, Genotype, Malaria, Blood Pressure and Blood Glucose Screening Among Selected Adults of a Community in Kwara State: Implications to Public Health. Asian Hematology Research Journal. 2022;6(3):9-17.
70. Obeagu EI, Obeagu GU, Ukibe NR, Oyebadejo SA. Anemia, iron, and HIV: decoding the interconnected pathways: A review. Medicine. 2024;103(2): e36937.
71. Obeagu EI. An update on susceptibility of individuals to diseases based on ABO blood groups. Int. J. Curr. Res. Med. Sci. 2019;5(3):1-8.
72. Okamgba OC, Nwosu DC, Nwobodo EI, Agu GC, Ozims SJ, Obeagu EI, Ibanga IE, Obioma-Elemba IE, Ihekaire DE, Obasi CC, Amah HC. Iron Status of Pregnant and Post-Partum Women with Malaria Parasitaemia in Aba Abia State, Nigeria. Annals of Clinical and Laboratory Research. 2017;5(4):206.
73. Anyiam AF, Arinze-Anyiam OC, Omosigho PO, Ibrahim M, Irondi EA, Obeagu EI, Obi E. Blood Group, Genotype, Malaria, Blood Pressure and Blood Glucose Screening Among Selected Adults of a Community in Kwara State: Implications to Public Health. Asian Hematology Research Journal. 2022;6(3):9-17.
74. Madekwe CC, Madekwe CC, Obeagu EI. Inequality of monitoring in Human Immunodeficiency Virus, Tuberculosis and Malaria: A Review. Madonna University journal of Medicine and Health Sciences. 2022;2(3):6-15.
75. Offie DC, Ibekwe AM, Agu CC, Esimai BN, Okpala PU, Obeagu EI, Ufelle SA, Ogbonna LN. Fibrinogen and C-Reactive Protein Significance in Children Infected by Plasmodium falciparum Species in Enugu, Enugu State, Nigeria. Journal of Pharmaceutical Research International. 2021;33(15):1-8.
76. Okorie HM, Obeagu EI, Eze EN, Jeremiah ZA. Assessment of coagulation parameters in malaria infected pregnant women in Imo state, Nigeria. International Journal of Current Research in Medical Sciences. 2018;4(9):41-9.
77. Emannuel G, Martin O, Peter OS, Obeagu EI, Daniel K. Factors Influencing Early Neonatal Adverse Outcomes among Women with HIV with Post Dated Pregnancies Delivering at Kampala International University Teaching Hospital, Uganda. Asian Journal of Pregnancy and Childbirth. 2023 Jul 29;6(1):203-211. http://research.sdpublishers.net/id/eprint/2819/.
78. Vincent CC, Obeagu EI, Agu IS, Ukeagu NC, Onyekachi-Chigbu AC. Adherence to Antiretroviral Therapy among HIV/AIDS in Federal Medical Centre, Owerri. Journal of Pharmaceutical Research International. 2021;33(57A):360-368.
79. Madekwe CC, Madekwe CC, Obeagu EI. Inequality of monitoring in Human Immunodeficiency Virus, Tuberculosis and Malaria: A Review. Madonna University journal of Medicine and Health Sciences. 2022;2(3):6-15. https://madonnauniversity.edu.ng/journals/index.php/medicine/article/view/69
80. Echendu GE, Vincent CC, Ibebuike J, Asodike M, Naze N, Chinedu EP, Ohale B, Obeagu EI. WEIGHTS OF INFANTS BORN TO HIV INFECTED MOTHERS: A PROSPECTIVE COHORT STUDY IN FEDERAL MEDICAL CENTRE, OWERRI, IMO STATE. European Journal of Pharmaceutical and Medical Research, 2023; 10(8): 564-568

81. Nwosu DC, Nwanjo HU, Okolie NJ, Ikeh K, Ajero CM, Dike J, Ojiegbe GC, Oze GO, Obeagu EI, Nnatunanya I, Azuonwu O. BIOCHEMICAL ALTERATIONS IN ADULT HIV PATIENTS ON ANTIRETRQVIRAL THERAPY. World Journal of Pharmacy and Pharmaceutical Sciences, 2015; 4(3): 153-160**.** links/5a4fd0500f7e9bbc10526b38/BIOCHEMICAL-ALTERATIONS-IN-ADULT-HIV-PATIENTS-ON-ANTIRETRQVIRAL-THERAPY.pdf.
82. Obeagu EI, Obeagu GU. Effect of CD4 Counts on Coagulation Parameters among HIV Positive Patients in Federal Medical Centre, Owerri, Nigeria. Int. J. Curr. Res. Biosci. Plant Biol. 2015;2(4):45-49.
83. Obeagu EI, Nwosu DC. Adverse drug reactions in HIV/AIDS patients on highly active antiretro viral therapy: a review of prevalence. Int. J. Curr. Res. Chem. Pharm. Sci. 2019;6(12):45-8.DOI: 10.22192/ijcrcps.2019.06.12.004 links/650aba1582f01628f0335795/Adverse-drug-reactions-in-HIV-AIDS-patients-on-highly-active-antiretro-viral-therapy-a-review-of-prevalence.pdf.
84. Obeagu EI, Scott GY, Amekpor F, Obeagu GU. Implications of CD4/CD8 ratios in Human Immunodeficiency Virus infections. Int. J. Curr. Res. Med. Sci. 2023;9(2):6-13.DOI: 10.22192/ijcrms.2023.09.02.002 links/645a4a462edb8e5f094ad37c/Implications-of-CD4-CD8-ratios-in-Human-Immunodeficiency-Virus-infections.pdf.
85. Obeagu EI, Ochei KC, Okeke EI, Anode AC. Assessment of the level of haemoglobin and erythropoietin in persons living with HIV in Umuahia. Int. J. Curr. Res. Med. Sci. 2016;2(4):29-33. links/5711c47508aeebe07c02496b/Assessment-of-the-level-of-haemoglobin-and-erythropoietin-in-persons-living-with-HIV-in-Umuahia.pdf.
86. Ifeanyi OE, Obeagu GU. The Values of CD4 Count, among HIV Positive Patients in FMC Owerri. Int. J. Curr. Microbiol. App. Sci. 2015;4(4):906-910. https://www.academia.edu/download/38320134/Obeagu_Emmanuel_Ifeanyi_and_Obeagu__Getrude_Uzoma.EMMA2.pdf.
87. Obeagu EI, Okeke EI, Anonde Andrew C. Evaluation of haemoglobin and iron profile study among persons living with HIV in Umuahia, Abia state, Nigeria. Int. J. Curr. Res. Biol. Med. 2016;1(2):1-5.
88. Ibebuike JE, Nwokike GI, Nwosu DC, Obeagu EI. A Retrospective Study on Human Immune Deficiency Virus among Pregnant Women Attending Antenatal Clinic in Imo State University Teaching Hospital. *International Journal of Medical Science and Dental Research,* 2018; 1 (2):08-14. https://www.ijmsdr.org/published%20paper/li1i2/A%20Retrospective%20Study%20on%20Human%20Immune%20Deficiency%20Virus%20among%20Pregnant%20Women%20Attending%20Antenatal%20Clinic%20in%20Imo%20State%20University%20Teaching%20Hospital.pdf.
89. Obeagu EI, Obarezi TN, Omeh YN, Okoro NK, Eze OB. Assessment of some haematological and biochemical parametrs in HIV patients before receiving treatment in Aba, Abia State, Nigeria. Res J Pharma Biol Chem Sci. 2014; 5:825-830.
90. Obeagu EI, Obarezi TN, Ogbuabor BN, Anaebo QB, Eze GC. Pattern of total white blood cell and differential count values in HIV positive patients receiving treatment in Federal

Teaching Hospital Abakaliki, Ebonyi State, Nigeria. International Journal of Life Science, Biotechnology and Pharama Research. 2014; 391:186-189.

91. Obeagu EI. A Review of Challenges and Coping Strategies Faced by HIV/AIDS Discordant Couples. Madonna University journal of Medicine and Health Sciences. 2023; 3 (1): 7-12.
92. Oloro OH, Obeagu EI. A Systematic Review on Some Coagulation Profile in HIV Infection. International Journal of Innovative and Applied Research. 2022;10(5):1-11.
93. Nwosu DC, Obeagu EI, Nkwuocha BC, Nwanna CA, Nwanjo HU, Amadike JN, Ezemma MC, Okpomeshine EA, Ozims SJ, Agu GC. Alterations in superoxide dismutiase, vitamins C and E in HIV infected children in Umuahia, Abia state. International Journal of Advanced Research in Biological Sciences. 2015;2(11):268-271.
94. Ifeanyi OE, Uzoma OG, Stella EI, Chinedum OK, Abum SC. Vitamin D and insulin resistance in HIV sero positive individuals in Umudike. Int. J. Curr. Res. Med. Sci. 2018;4(2):104-108.
95. Ifeanyi OE, Leticia OI, Nwosu D, Chinedum OK. A Review on blood borne viral infections: universal precautions. Int. J. Adv. Res. Biol. Sci. 2018;5(6):60-66.
96. Nwovu AI, Ifeanyi OE, Uzoma OG, Nwebonyi NS. Occurrence of Some Blood Borne Viral Infection and Adherence to Universal Precautions among Laboratory Staff in Federal Teaching Hospital Abakaliki Ebonyi State. Arch Blood Transfus Disord. 2018;1(2).
97. Chinedu K, Takim AE, Obeagu EI, Chinazor UD, Eloghosa O, Ojong OE, Odunze U. HIV and TB co-infection among patients who used Directly Observed Treatment Short-course centres in Yenagoa, Nigeria. IOSR J Pharm Biol Sci. 2017;12(4):70-75.
98. Offie DC, Obeagu EI, Akueshi C, Njab JE, Ekanem EE, Dike PN, Oguh DN. Facilitators and barriers to retention in HIV care among HIV infected MSM attending Community Health Center Yaba, Lagos Nigeria. Journal of Pharmaceutical Research International. 2021;33(52B):10-19.
99. Van Rie A, Harrington PR, Dow A, Robertson K. Neurologic and neurodevelopmental manifestations of pediatric HIV/AIDS: a global perspective. European journal of paediatric neurology. 2007;11(1):1-9.
100. Trivedi S, Chakravarty A. Neurological complications of malaria. Current neurology and neuroscience reports. 2022;22(8):499-513.
101. Eze R, Obeagu EI, Nwakulite A, Vincent CC, Ogbodo SO, Ibekwe AM, Okafor CJ, Chukwurah EF. Frequency of Haemoglobin Genotype Variants, ABO and Rh 'D'Antigen among Madonna Undergraduates of South East Origin, Nigeria. Journal of Pharmaceutical Research International. 2021 May 26;33(29B):149-57.
102. Okoroiwu IL, Obeagu EI, Christian SG, Elemchukwu Q, Ochei KC. Determination of the haemoglobin, genotype and ABO blood group pattern of some students of Imo State University, Owerri, Nigeria. International Journal of Current Research and Academic Review. 2015;3(1):20-27.
103. Oloro OH, Obeagu EI, Puche RO, Lawal OA. Blood Products in Blood Banking: Preparation and Clinical Importance. Madonna University journal of Medicine and Health Sciences ISSN: 2814-3035. 2022;2(3):102-109.

104. Asemota EA, Njar VE, Aguanah IT, Obeagu EI. Distribution of ABO, Rhesus Blood Group and Helicobacter Pylori Infection among Secondary School Students in Calabar South Local Government, Cross River State, Nigeria. Madonna University journal of Medicine and Health Sciences ISSN: 2814-3035. 2023;3(1):32-45.
105. Obeagu EI, Katya MC. A Systematic Review on Physiological Jaundice: Diagnosis and Management of the Affected Neonates. Madonna University journal of Medicine and Health Sciences. 2022;2(3):25-41.
106. Ogbonna LN, Ezeoru VC, Ofodile AC, Ochiabuto OM, Obi-Ezeani CN, Okpala PU, Okafor CJ, Obeagu GU, Busari AI, Obeagu EI. Gender Based Variations of Haematological Parameters of Patients with Asymptomatic Malaria in Akure, Ondo State, Nigeria. Journal of Pharmaceutical Research International. 2021;33(8):75-80.
107. Eberendu IF, Ozims SJ, Agu GC, Amah HC, Obasi CC, Obioma-Elemba JE, Ihekaire DE, Ibanga IE, Amah CC, Obeagu EI, Nwosu DC. Impact of human activities on the breeding of mosquitoes of human disease in Owerri metropolis, Imo state. Int J Adv Res Biol Sci IJARBS. 2017;4(12):98-106.
108. Obeagu EI, Ofodile AC, Okwuanaso CB. A review on socio economic and behavioral aspects of malaria and its control among children under 5 years of age in Africa. J Pub Health Nutri. 2023; 6 (1): 136.
109. Obeagu EI, Obeagu GU, Ede MO, Odo EO, Buhari HA. Translation of HIV/AIDS knowledge into behavior change among secondary school adolescents in Uganda: A review. Medicine (Baltimore). 2023;102(49): e36599. doi: 10.1097/MD.0000000000036599. PMID: 38065920; PMCID: PMC10713174.
110. Anyiam AF, Arinze-Anyiam OC, Irondi EA, Obeagu EI. Distribution of ABO and rhesus blood grouping with HIV infection among blood donors in Ekiti State Nigeria. Medicine (Baltimore). 2023;102(47): e36342. doi: 10.1097/MD.0000000000036342. PMID: 38013335; PMCID: PMC10681551.
111. Echefu SN, Udosen JE, Akwiwu EC, Akpotuzor JO, Obeagu EI. Effect of Dolutegravir regimen against other regimens on some hematological parameters, CD4 count and viral load of people living with HIV infection in South Eastern Nigeria. Medicine (Baltimore). 2023;102(47): e35910. doi: 10.1097/MD.0000000000035910. PMID: 38013350; PMCID: PMC10681510.
112. Opeyemi AA, Obeagu EI. Regulations of malaria in children with human immunodeficiency virus infection: A review. Medicine (Baltimore). 2023;102(46): e36166. doi: 10.1097/MD.0000000000036166. PMID: 37986340; PMCID: PMC10659731.
113. Obeagu EI, Obeagu GU, Obiezu J, Ezeonwumelu C, Ogunnaya FU, Ngwoke AO, Emeka-Obi OR,
114. Obeagu EI, Ubosi NI, Uzoma G. Storms and Struggles: Managing HIV Amid Natural Disasters. Int. J. Curr. Res. Chem. Pharm. Sci. 2023;10(11):14-25.
115. Obeagu EI, Obeagu GU. Human Immunodeficiency Virus and tuberculosis infection: A review of prevalence of associated factors. Int. J. Adv. Multidiscip. Res. 2023;10(10):56-62.

116. Obeagu EI, Obeagu GU. Unmasking the Truth: Addressing Stigma in the Fight Against HIV. Elite Journal of Public Health. 2024;2(1):8-22.
117. Obeagu EI, Obeagu GU, Okwuanaso CB. Optimizing Immune Health in HIV Patients through Nutrition: A Review. Elite Journal of Immunology. 2024;2(1):14-33.
118. Obeagu EI, Obeagu GU. Utilization of immunological ratios in HIV: Implications for monitoring and therapeutic strategies. Medicine. 2024;103(9): e37354.
119. Obeagu EI, Obeagu GU. CD8 Dynamics in HIV Infection: A Synoptic Review. Elite Journal of Immunology. 2024;2(1):1-3.
120. Obeagu EI, Obeagu GU. Implications of B Lymphocyte Dysfunction in HIV/AIDS. Elite Journal of Immunology. 2024;2(1):34-46.
121. Obeagu EI, Obeagu GU. Maternal Influence on Infant Immunological Responses to HIV: A Review. Elite Journal of Laboratory Medicine. 2024;2(1):46-58.
122. Obeagu EI, Obeagu GU. Understanding B Lymphocyte Functions in HIV Infection: Implications for Immune Dysfunction and Therapeutic Strategies. Elite Journal of Medicine. 2024;2(1):35-46.
123. Obeagu EI, Obeagu GU. Platelet-Driven Modulation of HIV: Unraveling Interactions and Implications. Journal home page: http://www. journalijiar. com.;12(01).
124. Obeagu EI, Anyiam AF, Obeagu GU. Managing Hematological Complications in HIV: Erythropoietin Considerations. Elite Journal of HIV. 2024;2(1):65-78.
125. Obeagu EI, Obeagu GU, Hauwa BA, Umar AI. Hematocrit Variations in HIV Patients Co-infected with Malaria: A Comprehensive Review. Journal home page: http://www. journalijiar. com.;12(01).
126. Obeagu EI, Obeagu GU. Synergistic Effects of Blood Transfusion and HIV in Children Under 5 Years with Severe Malaria: A Review. Elite Journal of HIV. 2024;2(1):31-50.
127. Obeagu EI, Anyiam AF, Obeagu GU. Unveiling B Cell Mediated Immunity in HIV Infection: Insights, Challenges, and Potential Therapeutic Avenues. Elite Journal of HIV. 2024;2(1):1-5.
128. Obeagu EI, Obeagu GU. Hematocrit Fluctuations in HIV Patients Co-infected with Malaria Parasites: A Comprehensive Review. Int. J. Curr. Res. Med. Sci. 2024;10(1):25-36.
129. Obeagu EI, Obeagu GU. Transfusion Therapy in HIV: Risk Mitigation and Benefits for Improved Patient Outcomes. Sciences. 2024;4(1):32-7.
130. Obeagu EI, Obeagu GU. Mental Health and Psychosocial Effects of natural disaster on HIV Patients. Sciences. 2024;4(1):38-44.
131. Obeagu EI, Obeagu GU. Eosinophil-Associated Changes in Neonatal Thymic T Regulatory Cell Populations in HIV-Infected Pregnancies. Elite Journal of Health Science. 2024;2(1):33-42.
132. Obeagu EI, Obeagu GU. Advances in Understanding the Impact of Blood Transfusion on Anemia Resolution in HIV-Positive Children with Severe Malaria: A Comprehensive Review. Elite Journal of Haematology. 2024;2(1):26-41.

133. Obeagu EI, Ayogu EE, Obeagu GU. Interactions between Blood Transfusion and Antiretroviral Medications: Implications for Patient Care. Elite Journal of Medicine. 2024;2(2):104-15.
134. Obeagu EI, Obeagu GU. Maternal Eosinophilic Responses in HIV-Positive Pregnant Women: Unraveling Immunological Dynamics for Improved Maternal-Fetal Health. Elite Journal of Immunology. 2024;2(1):47-64.
135. Obeagu EI, Anyanwu CN, Obeagu GU. Challenges and Considerations in Managing Blood Transfusion for Individuals with HIV. Elite Journal of HIV. 2024;2(2):1-7.
136. Obeagu EI, Ubosi NI, Obeagu GU, Akram M. Early Infant Diagnosis: Key to Breaking the Chain of HIV Transmission. Elite Journal of Public Health. 2024;2(1):52-61.
137. Obeagu EI, Obeagu GU. Understanding Hematocrit Fluctuations in HIV-Malaria Coinfection for Improved Management. Elite Journal of Public Health. 2024;2(1):22-34.
138. Obeagu EI, Obeagu GU. The Impact of Erythropoietin on Preeclampsia in HIV-Positive Women: A Review. Elite Journal of Nursing and Health Science. 2024;2(1):21-31.
139. Obeagu EI, Obeagu GU. Platelet Distribution Width (PDW) as a Prognostic Marker for Anemia Severity in HIV Patients: A Comprehensive Review. Journal home page: http://www. journalijiar. com.;12(01).
140. Obeagu EI, Obeagu GU. Neonatal Outcomes in Children Born to Mothers with Severe Malaria, HIV, and Transfusion History: A Review. Elite Journal of Nursing and Health Science. 2024;2(3):38-58.
141. Obeagu EI, Obeagu GU. Assessing Platelet Functionality in HIV Patients Receiving Antiretroviral Therapy: Implications for Risk Assessment. Elite Journal of HIV. 2024;2(3):14-26.
142. Obeagu EI, Obeagu GU. Advancements in HIV Prevention: Africa's Trailblazing Initiatives and Breakthroughs. Elite Journal of Public Health. 2024;2(1):52-63.
143. Obeagu EI, Obeagu GU. Maternal Influence on Infant Immunological Responses to HIV: A Review. Elite Journal of Laboratory Medicine. 2024;2(1):46-58.
144. Obeagu EI, Obeagu GU. Counting Cells, Shaping Fates: CD4/CD8 Ratios in HIV. Elite Journal of Scientific Research and Review. 2024;2(1):37-50.
145. Obeagu EI, Anyiam AF, Obeagu GU. Managing Hematological Complications in HIV: Erythropoietin Considerations. Elite Journal of HIV. 2024;2(1):65-78.
146. Obeagu EI, Obeagu GU. Immune Modulation in HIV-Positive Neonates: Insights and Implications for Clinical Management. Elite Journal of Nursing and Health Science. 2024;2(3):59-72.
147. Obeagu EI, Ayogu EE, Obeagu GU. Impact on Viral Load Dynamics: Understanding the Interplay between Blood Transfusion and Antiretroviral Therapy in HIV Management. Elite Journal of Nursing and Health Science. 2024;2(2):5-15.
148. Obeagu EI, Obeagu GU. Understanding B Lymphocyte Functions in HIV Infection: Implications for Immune Dysfunction and Therapeutic Strategies. Elite Journal of Medicine. 2024;2(1):35-46.

149. Obeagu EI, Anyanwu CN, Obeagu GU. Challenges and Considerations in Managing Blood Transfusion for Individuals with HIV. Elite Journal of HIV. 2024;2(2):1-7.
150. Obeagu EI, Obeagu GU. Understanding ART and Platelet Functionality: Implications for HIV Patients. Elite Journal of HIV. 2024;2(2):60-73.
151. Obeagu EI, Obeagu GU. The Role of Blood Transfusion Strategies in HIV Management: Current Insights and Future Directions. Elite Journal of Medicine. 2024;2(1):10-22.
152. Obeagu EI, AmaezeAA O, Obeagu GU. B Cell Deficiency and Implications in HIV Pathogenesis: Unraveling the Complex Interplay. Elite Journal of Nursing and Health Science. 2024;2(2):33-46.
153. Obeagu EI, Obeagu GU. Eosinophil Dynamics in Pregnancy among Women Living with HIV: A Comprehensive Review. Int. J. Curr. Res. Med. Sci. 2024;10(1):11-24.
154. Obeagu EI, Obeagu GU. Hematocrit Fluctuations in HIV Patients Co-infected with Malaria Parasites: A Comprehensive Review. Int. J. Curr. Res. Med. Sci. 2024;10(1):25-36.
155. Obeagu EI, Obeagu GU. Unveiling the Role of Innate Immune Activation in Pediatric HIV: A Review. Elite Journal of Immunology. 2024;2(3):33-44.
156. Obeagu EI, Obeagu GU. Harnessing B Cell Responses for Personalized Approaches in HIV Management. Elite Journal of Immunology. 2024;2(2):15-28.
157. Obeagu EI, Obeagu GU, Hauwa BA, Umar AI. Neutrophil Dynamics: Unveiling Their Role in HIV Progression within Malaria Patients. Journal home page: http://www. journalijiar. com.;12(01).
158. Obeagu EI, Obeagu GU, Hauwa BA, Umar AI. Hematocrit Variations in HIV Patients Co-infected with Malaria: A Comprehensive Review. Journal home page: http://www. journalijiar. com.;12(01).
159. Obeagu EI, Anyiam AF, Obeagu GU. Managing Anemia in HIV through Blood Transfusions: Clinical Considerations and Innovations. Elite Journal of HIV. 2024;2(1):16-30.
160. Obeagu EI, Obeagu GU. Maternal Eosinophilic Responses in HIV-Positive Pregnant Women: Unraveling Immunological Dynamics for Improved Maternal-Fetal Health. Elite Journal of Immunology. 2024;2(1):47-64.
161. Obeagu EI, Obeagu GU. Platelet Aberrations in HIV Patients: Assessing Impacts of ART. Elite Journal of Haematology, 2024; 2 (3).:10-24.
162. Obeagu EI, Obeagu GU. Hematological Changes Following Blood Transfusion in Young Children with Severe Malaria and HIV: A Critical Review. Elite Journal of Laboratory Medicine. 2024;2(1):33-45.
163. Obeagu EI, Anyiam AF, Obeagu GU. Erythropoietin Therapy in HIV-Infected Individuals: A Critical Review. Elite Journal of HIV. 2024;2(1):51-64.
164. Obeagu EI, Ubosi NI, Obeagu GU, Obeagu AA. Nutritional Strategies for Enhancing Immune Resilience in HIV: A Review. Int. J. Curr. Res. Chem. Pharm. Sci. 2024;11(2):41-51.

165. Obeagu EI, Obeagu GU. The Crucial Role of Erythropoietin in Managing Anemia in HIV: A Review. Elite Journal of Scientific Research and Review. 2024;2(1):24-36.
166. Obeagu EI, Obeagu GU. Impact of Maternal Eosinophils on Neonatal Immunity in HIV-Exposed Infants: A Review. Elite Journal of Immunology. 2024;2(3):1-8.
167. Obeagu EI, Anyiam AF, Obeagu GU. Unveiling B Cell Mediated Immunity in HIV Infection: Insights, Challenges, and Potential Therapeutic Avenues. Elite Journal of HIV. 2024;2(1):1-5.
168. Obeagu EI, Obeagu GU. Anemia and Erythropoietin: Key Players in HIV Disease Progression. Elite Journal of Haematology, 2024; 2 (3).:42-57.
169. Obeagu EI, Obeagu GU. Platelet Dysfunction in HIV Patients: Assessing ART Risks. Elite Journal of Scientific Research and Review. 2024;2(1):1-6.
170. Obeagu EI, Ubosi NI, Obeagu GU, Akram M. Early Infant Diagnosis: Key to Breaking the Chain of HIV Transmission. Elite Journal of Public Health. 2024;2(1):52-61.
171. Obeagu EI, Obeagu GU. Transfusion Therapy in HIV: Risk Mitigation and Benefits for Improved Patient Outcomes. Sciences. 2024;4(1):32-7.
172. Obeagu EI, Obeagu GU. P-Selectin and Immune Activation in HIV: Clinical Implications. Elite Journal of Health Science. 2024;2(2):16-29.
173. Obeagu EI, Obeagu GU. Mental Health and Psychosocial Effects of natural disaster on HIV Patients. Sciences. 2024;4(1):38-44.
174. Obeagu EI, Obeagu GU. Optimizing Blood Transfusion Protocols for Breast Cancer Patients Living with HIV: A Comprehensive Review. Elite Journal of Nursing and Health Science. 2024;2(2):1-7.
175. Obeagu EI, Obeagu GU. Advances in Understanding the Impact of Blood Transfusion on Anemia Resolution in HIV-Positive Children with Severe Malaria: A Comprehensive Review. Elite Journal of Haematology. 2024;2(1):26-41.
176. Obeagu EI, Obeagu GU. Transfusion-Related Complications in Children Under 5 with Coexisting HIV and Severe Malaria: A Review. Int. J. Curr. Res. Chem. Pharm. Sci. 2024;11(2):9-19.
177. Obeagu EI, Obeagu GU. Impact of Blood Transfusion on Viral Load Dynamics in HIV-Positive Neonates with Severe Malaria: A Review. Elite Journal of Scientific Research and Review. 2024;2(1):42-60.
178. Obeagu EI, Ayogu EE, Obeagu GU. Interactions between Blood Transfusion and Antiretroviral Medications: Implications for Patient Care. Elite Journal of Medicine. 2024;2(2):104-5.
179. Obeagu EI, Obeagu GU. P-Selectin Expression in HIV-Associated Coagulopathy: Implications for Treatment. Elite Journal of Haematology, 2024; 2 (3).:25-41.
180. Obeagu EI, Obeagu GU. Eosinophil-Associated Changes in Neonatal Thymic T Regulatory Cell Populations in HIV-Infected Pregnancies. Elite Journal of Health Science. 2024;2(1):33-42.
181. Obeagu EI, Obeagu GU. Exploring the Role of L-selectin in HIV-related Immune Exhaustion: Insights and Therapeutic Implications. Elite Journal of HIV. 2024;2(2):43-59.
182. Obeagu EI. Erythropoietin and the Immune System: Relevance in HIV Management. Elite Journal of Health Science. 2024;2(3):23-35.

Citation: Obeagu EI, Obeagu GU. Impact of Blood Transfusion on Respiratory Function in HIV-Positive Pediatric Severe Malaria Cases: A Review. *Elite Journal of Scientific Research and Review*, 2024; 2(3): 49-68

183. Obeagu EI, Obeagu GU. The Impact of Erythropoietin on Preeclampsia in HIV-Positive Women: A Review. Elite Journal of Nursing and Health Science. 2024;2(1):21-31.
184. Obeagu EI, Obeagu GU. Unraveling the Role of Eosinophil Extracellular Traps (EETs) in HIV-Infected Pregnant Women: A Review. Elite Journal of Nursing and Health Science. 2024;2(3):84-99.
185. Obeagu EI, Obeagu GU. Hematologic Considerations in Breast Cancer Patients with HIV: Insights into Blood Transfusion Strategies. Elite Journal of Health Science. 2024;2(2):20-35.
186. Obeagu EI, Obeagu GU. L-selectin and HIV-Induced Immune Cell Trafficking: Implications for Pathogenesis and Therapeutic Strategies. Elite Journal of Laboratory Medicine. 2024;2(2):30-46.
187. Obeagu EI, Obeagu GU. The Intricate Relationship Between Erythropoietin and HIV-Induced Anemia: Unraveling Pathways for Therapeutic Insights. Int. J. Curr. Res. Chem. Pharm. Sci. 2024;11(2):30-40.
188. Obeagu EI, Obeagu GU. The Role of L-selectin in Tuberculosis and HIV Coinfection: Implications for Disease Diagnosis and Management. Elite Journal of Public Health. 2024;2(1):35-51.
189. Kalu OA, Ukibe NR, Onyenekwe CC, Okoyeagu RC, Nnaemeka WS, Onyenekwe AJ, Ukibe EG, Ukibe BC, Ukibe VE, Obeagu EI. Assessment of Serum Cystatin C, Microalbumin Levels and Egfr in HIV Seropositive Individuals based on Age and Gender in NAUTH, Nnewi, Nigeria. Elite Journal of Medicine. 2024;2(3):48-59.
190. Obeagu EI, Obeagu GU. Understanding Immune Cell Trafficking in Tuberculosis-HIV Coinfection: The Role of L-selectin Pathways. Elite Journal of Immunology. 2024;2(2):43-59.
191. Obeagu EI, Obeagu GU. Eosinophilic Changes in Placental Tissues of HIV-Positive Pregnant Women: A Review. Elite Journal of Laboratory Medicine. 2024;2(1):14-32.
192. Obeagu EI, Obeagu GU. P-Selectin and Platelet Activation in HIV: Implications for Antiviral Therapy. Elite Journal of Scientific Research and Review. 2024;2(1):17-41.
193. Obeagu EI, Obeagu GU. Strength in Unity: Building Support Networks for HIV Patients in Uganda. Elite Journal of Medicine. 2024;2(1):1-6.
194. Obeagu EI, GU EE. Understanding the Intersection of Highly Active Antiretroviral Therapy and Platelets in HIV Patients: A Review. Elite Journal of Haematology, 2024; 2 (3).:111-7.