



A Retrospective Comparative Analysis of Use and Rate of Compliance of Hydroxyurea in Sickle Cell Disease Patients at University of Maryland and Barau Dikko Teaching Hospital/Kaduna State University Kaduna, Nigeria: A Global Health Prospective of Sickle Cell Disease Care

**COLLECTION: GME
RESEARCH DAY 2021
PUBLISHED ABSTRACT**

MOHAMMAD IMRAN, MD, MPH 

HALIMA MANGA, MD, MPH

JESSICA BROWN, PHD

ANDREA HENDRZAK, MD

SANDRINE NIYONEGERE, MD

**Author affiliations can be found in the back matter of this article*



Levy
Library
Press

ABSTRACT

Background: Countries of Sub-Saharan Africa, middle east and subcontinent region bear the greatest burden of SCD-associated morbidity and mortality. Hydroxyurea (HU) reduces up to 50% of hospitalizations and blood transfusion rate associated with SCD. HU is being used routinely in high-income countries but still remains a challenge in resource-limited countries. HU is a cost-effective intervention so learning underlying factors associated with HU use can address this problem. There is not any study that compares developing and developed country regarding HU use. There is huge disparity between USA and Nigeria regarding mortality. Hence this study identified factors associated with disparity of care, morbidity & mortality.

Methods: Charts of 75 SCD patients treated at UMMC from January 2019 to January 2020 were reviewed. Data of 18 patients who met the eligibility criteria were extracted and charts of 30 patients being treated at Nigerian hospital from same time interval were reviewed and extracted. To identify disparity of care, and difference in morbidity and mortality rate, data were collected regarding heart failure, pain crisis, hospitalization, stroke, HU compliance and acute chest syndrome (ACS).

Results: Factors associated with low compliance in USA is treatment none-adherence and insurance issues, whereas in the Nigerian hospital is financial constraints and hydroxyurea availability. Regarding disparity of care, none of the Nigerian patients had any Hemoglobin F, Hemoglobin S percentage documentation, because a diagnosis of SCD is based on alkaline electrophoresis which does not quantify the hemoglobin type. Therefore, the phenotype in Nigerian cohort were not identified. In USA cohort all the patients had HbF percentage tested by high performance liquid chromatography (HPLC) prior to starting HU. There is no significant difference in compliance rate ((Nig 67% VS US 78% P value 0.52). Three patients in Nigerian cohort died prior to age of 35 but none in USA cohort. Fisher exact and chi square tests were used for analysis. P value of all the parameters is >0.05 except the ACS which is 0.0036. Hence findings are not statistically significant except ACS (75% US VS 18% P 0.0036).

CORRESPONDING AUTHOR:

Mohammad Imran, MD, MPH
Bronxcare Hospital, Bronx, NY, US
University of Maryland, US
mohammad.imran@umaryland.edu

KEYWORDS:

Global Health Prospective of Sickle Cell Disease and disparity in care

TO CITE THIS ARTICLE:

Imran M, Manga H, Brown J, Hendrzak A, Niyonegere S. A Retrospective Comparative Analysis of Use and Rate of Compliance of Hydroxyurea in Sickle Cell Disease Patients at University of Maryland and Barau Dikko Teaching Hospital/Kaduna State University Kaduna, Nigeria: A Global Health Prospective of Sickle Cell Disease Care. *Journal of Scientific Innovation in Medicine*. 2021; 4(2): 15, pp. 1–2. DOI: <https://doi.org/10.29024/jsim.115>

Conclusion: Sample size is small. Hence it is difficult to make conclusion but, data is showing that there is disparity in terms of mortality, morbidity, health care services (e.g., lab test, blood transfusion resources, screening test) and use of HU between these two counties.

COMPETING INTERESTS

The authors have no competing interests to declare.

AUTHOR AFFILIATIONS

Mohammad Imran, MD, MPH  orcid.org/0000-0001-5809-0828

Bronxcare Hospital, Bronx, NY, US;
University of Maryland, US

Halima Manga, MD, MPH

Barau Dikko Teaching Hospital/Kaduna State University Kaduna, Nigeria, NG

Jessica Brown, PhD

School of Medicine, University of Maryland, US

Andrea Hendrzak, MD

Bronxcare Hospital, Bronx, US

Sandrine Niyonegere, MD

School of medicine, University of Maryland, US

TO CITE THIS ARTICLE:

Imran M, Manga H, Brown J, Hendrzak A, Niyonegere S. A Retrospective Comparative Analysis of Use and Rate of Compliance of Hydroxyurea in Sickle Cell Disease Patients at University of Maryland and Barau Dikko Teaching Hospital/Kaduna State University Kaduna, Nigeria: A Global Health Prospective of Sickle Cell Disease Care. *Journal of Scientific Innovation in Medicine*. 2021; 4(2): 15, pp. 1–2. DOI: <https://doi.org/10.29024/jsim.115>

Submitted: 04 May 2021

Accepted: 04 May 2021

Published: 25 May 2021

COPYRIGHT:

© 2021 The Author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC-BY 4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited. See <http://creativecommons.org/licenses/by/4.0/>.

Journal of Scientific Innovation in Medicine is a peer-reviewed open access journal published by Levy Library Press.