Open Access Library Journal
2023, Volume 10, e9438
ISSN Online: 2333-9721
ISSN Print: 2333-9705

Profile of Patients Who Consulted at the Center for Mixed Medicine and SS Anemia from January 1, 2018 to December 31, 2020

Paulin Mulowayi[1,2*], Berry I. Bongenya[3,4], Ben I. Bulanda[3,4], Elvis T. Kateba[4], Charlotte L. Tshinguta[5], Steve Kodondi[1,2], Christian P. Vangu[1,2], Blezz Nkolomoni[1,2], Erick N. Kamangu[4,6*]

[1]Institute for Research in Health Sciences, Kinshasa, Democratic Republic of Congo
[2]Centre for Mixed Medicine and SS Anemia, Kinshasa, Democratic Republic of Congo
[3]Faculty of Medicine, Bel Campus Technological University, Kinshasa, Democratic Republic of Congo
[4]"Focus HIV/AIDS" Research Group, Kinshasa, Democratic Republic of Congo
[5]National Veterinary Laboratory, Kinshasa, Democratic Republic of Congo
[6]Department of Basic Sciences, Faculty of Medicine, University of Kinshasa, Kinshasa, Democratic Republic of Congo
Email: *drmulkapaul@gmail.com, *erick.kamangu@unikin.ac.cd

How to cite this paper: Mulowayi, P., Bongenya, B.I., Bulanda, B.I., Kateba, E.T., Tshinguta, C.L., Kodondi, S., Vangu, C.P., Nkolomoni, B. and Kamangu, E.N. (2023) Profile of Patients Who Consulted at the Center for Mixed Medicine and SS Anemia from January 1, 2018 to December 31, 2020. *Open Access Library Journal*, **10**: e9438.
https://doi.org/10.4236/oalib.1109438

Received: October 10, 2022
Accepted: January 17, 2023
Published: January 20, 2023

Abstract

Context: Sickle cell disease is the most widespread genetic hematological disease in the world and constitutes a real public health problem with an increasingly increasing prevalence. **Objective:** The objective of this study was to determine the profile of patients who consulted at the Center for Mixed Medicine and SS Anemia in Kinshasa. **Methods:** A retrospective descriptive study of the data available in the files of patients who consulted the CMMASS during the period from January 1, 2018 to December 31, 2020 was conducted at CMMASS. The population of interest consists exclusively of all patients aged 18 and over who consulted the CMMASS during the study period. The parameters of interest retained for this study were: hemoglobin type, sex and age. **Results:** During the study period, 3649 records of patients who consulted during the study period were collected, including 2463 SS homozygous sickle cell patients, *i.e.* 67.49%. The female sex was dominant in all populations (58.74%) with a sex ratio of 1.42 women for 1 man. In the general population, the age group of 18 to 25 years was dominant with 1685 patients (46.18%) followed by that of 26 to 33 years (29.19%), that of 34 to 41 years (22.47%) and those over 42 (2.16%). This same order of succession is found in all populations studied. **Conclusion:** The most consulted patients at the Center for Mixed Medicine and SS Anemia are female in the age group of 18 to 25 years with an SS homozygous profile for sickle cell anemia.

Subject Areas

Immunology

Keywords

Profile, Patients, CMMASS, Kinshasa

1. Introduction

Sickle cell disease is the most widespread genetic hematological disease in the world and constitutes a real public health problem with an increasingly increasing prevalence of the major forms and in the world is of the order of 300,000 births per year, including 230,000 in Sub-Saharan Africa [1] [2] [3].

Sickle cell disease or sickle cell anemia is an autosomal recessive disease mainly affecting populations from sub-Saharan Africa, the West Indies and North Africa. It is very widespread in the Democratic Republic of Congo (DRC), since according to recent data it concerns between 10% and 20% of subjects in its heterozygous form and nearly 2% in its homozygous form [4]. This pathology is linked to a point mutation A-T at the level of the 6th codon of the globin B chain gene, resulting in the replacement of valine by glutamic acid in position 6 of the B chain of hemoglobin, at the origin of hemoglobin polymerization occurring in situations of deoxygenation. The homozygous expression of the disease is severe with high mortality. It combines the presence of chronic hemolytic anemia, painful vaso-occlusive crises and a high susceptibility to infections, which are often fatal [5].

In Kinshasa, capital of the DRC, the Center for Mixed Medicine and SS Anemia (CMMASS) is the center specializing in the care of patients with sickle cell disease. It is a reference hospital center in the area in the national health system.

The objective of this study was to determine the profile of patients who consulted at the Center for Mixed Medicine and SS Anemia in Kinshasa, DRC.

2. Methods

2.1. Setting and Type of Study

The study was conducted at CMMASS, which is an institution specializing in the management of sickle cell disease. This center has a capacity of 57 beds, it is located in the center of Kinshasa. This is a retrospective descriptive study based on the data available in the files of patients who consulted the CMMASS during the period from January 1, 2018 to December 31, 2020.

2.2. Study Population

The population of interest consists exclusively of all patients aged 18 and over who consulted the CMMASS during the study period.

2.3. Inclusion Criteria

Any record of a patient aged 18 and over, with a documented electrophoresis result (homozygous SS, heterozygous or normal AA), having consulted during the period of interest was considered for this work.

2.4. Parameter of Interest

The parameters of interest retained for this study, according to medical records, were: hemoglobin type, sex and age.

3. Results

3.1. Types of Hemoglobin

During the study period, 3649 patient files consulted during the study period were collected, including 2463 SS homozygous sickle cell patients, *i.e.* 67.49%, 639 AS heterozygotes, *i.e.* 17.51% and 547 normal AA homozygous subjects, *i.e.* 15% (Figure 1).

3.2. Sex Ratio

The female sex was dominant in all populations: SS homozygotes 1350 (54.81%) versus 1113 (45.19%), with a sex ratio of 1.21 female to male; AS heterozygotes 398 (62.34%) against 241 (37.66%) with a sex ratio of 1.65 in favor of the female sex; and in normal AA 396 (72.39%) versus 151 (27.71%) with a sex ratio of 2.62 in favor of women. This gives a total of 2144 women (58.74%) for 1505 men (42.25%) with a sex ratio of 1.42 women for 1 man (Table 1).

3.3. Age Group

In the general population, the age group of 18 to 25 years was dominant with 1685 patients (46.18%) followed by that of 26 to 33 years (29.19%), that of 34 to 41 years (22.47%) and those over 42 (2.16%). This same order of succession is

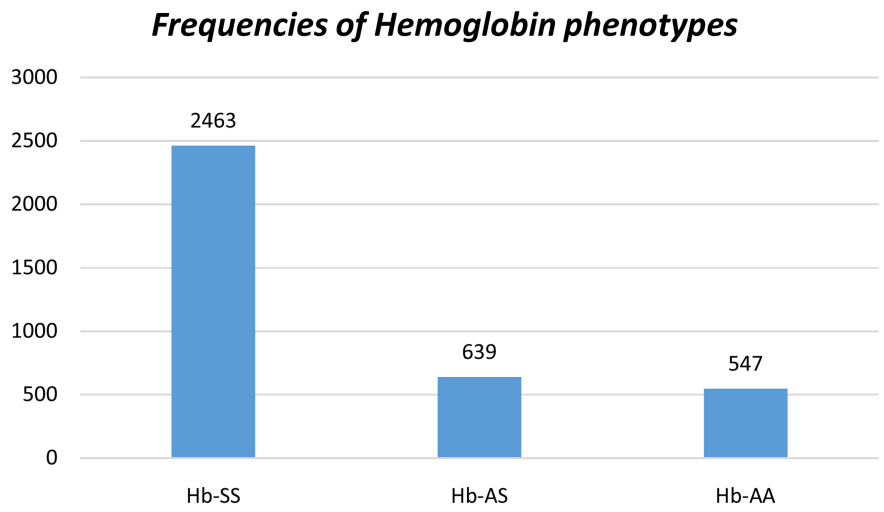

Figure 1. Frequencies of Hemoglobin phenotypes.

Table 1. Distribution of subjects by hemoglobin type, sex and age group.

	Hb-SS		Hb-AS		Hb-AA		Total
	n	%	n	%	n	%	
Sex							
Male	1113	45.19	241	37.72	151	27.61	1505
Female	1350	54.81	398	62.28	396	72.39	2144
Total	2463	100.00	639	100.00	547	100.00	3649
Age Interval							
18 - 25	1148	46.61	366	57.28	171	31.26	1685
26 - 33	719	29.19	181	28.33	165	30.16	1065
34 - 41	586	23.79	75	11.74	159	29.07	820
>42	10	0.41	17	2.66	52	9.51	79
Total	2463	100.00	639	100.00	547	100.00	3649

found in all populations studied (Table 1).

4. Discussion

The objective of this study was to identify the profile of patients who consulted at CMMASS during the period from January 01, 2018 to December 31, 2020. A total of 3649 files were collected for the study period.

The Center for Mixed Medicine and Anemia SS (CMMASS) is the only official institution in the Democratic Republic of Congo (DRC) specializing in the management of sickle cell disease (Anemia SS). Its activity package is extended to the management of other pathologies, thus also including the general population and therefore plays the role of a secondary level hospital, as the General Reference Hospital (HGR) of the area. It receives sickle cell patients from all the communes of Kinshasa, other provinces as well as certain neighboring countries (Angola, Republic of Congo, Central African Republic, etc.).

During the study period, 3649 patient files consulted during the study period were collected, including 2463 SS homozygous sickle cell patients, *i.e.* 67.49%, 639 AS heterozygotes, *i.e.* 17.51% and 547 normal AA homozygous subjects, *i.e.* 15%. Similar results have been presented in the CMMASS literature [6]. This confirms the position of the CMMASS as HGR but even more so as a center specializing in the treatment of sickle cell patients.

The female sex was dominant in all populations: SS homozygotes 1350 (54.81%) versus 1113 (45.19%), with a sex ratio of 1.21 female to male; AS heterozygotes 398 (62.34%) against 241 (37.66%) with a sex ratio of 1.65 in favor of the female sex; and in normal AA 396 (72.39%) versus 151 (27.71%) with a sex ratio of 2.62 in favor of women. This gives a total of 2144 women (58.74%) for 1505 men (42.25%) with a sex ratio of 1.42 women for 1 man. Although having no gender connotation, consultation for sickle cell disease in Kinshasa, and even

in the DRC, has always been in favor of the female sex [4] [7]. It was noticed that even in the population of homozygous AA patients, the consultation has a tendency to the dominant female sex.

In the general population, the age group of 18 to 25 years was dominant with 1685 patients (46.18%) followed by that of 26 to 33 years (29.19%), that of 34 to 41 years (22.47%) and those over 42 (2.16%). This same order of succession is found in all populations studied. This predominance is also found in the study by Mwanaut I. in Kinshasa [6], by Ya Pongombo S.M. in Lubumbashi [2].

5. Conclusion

The most consulted patients at the Center for Mixed Medicine and SS Anemia are female in the age group of 18 to 25 years with an SS homozygous profile for sickle cell anemia.

Conflicts of Interest

The authors declare no conflict of interest regarding this work.

References

[1] Modell, B. and Darlinson, M. (2008) Global Epydemiology of Haemoglobin Disorders and Derived Service Indicators. *Bulletin of the World Health Organization*, **86**, 480-487. https://doi.org/10.2471/BLT.06.036673

[2] Ya Pongombo, S.M., Mukuku, O., Kasole, L.T., Mulangu, M.A., Wakamb Kateng, G., Sombodi, U.W., Mbuli, L.R., Okitotsho, W.S. and Numbi, L.O. (2014) Drépanocytose chez l'enfant Lushois de 6 à 59 mois en phase stationnaire: Épidémiologie et clinique. *Pan African Medical Journal*, **19**, 71. https://doi.org/10.11604/pamj.2014.19.71.3684

[3] Serjeant, G.R. (2013) The Natural History of Sickle Cell Disease. Cold Spring Harbor Laboratory Press, Cold Spring Harbor, New York, Vol. 129, 155-161.

[4] Tshilolo, L., Aissi, L.M., Lukusa, D., Kinsiama, C., Wenbonyama, S. and Gulbis, B. (2009) Neonatal Screening for Sickle Cell Anemia in the Democratic Republic of the Congo: Experience from a Pioneer Project on 31,204 Newborns. *Journal of Clinical Pathology*, **62**, 35-38. https://doi.org/10.1136/jcp.2008.058958

[5] Labie, D. and Elion, J. (2003) Génétique et physiopathologie de la drépanocytose. In: Girot, R., Begué, P., Galacteros, F., Eds., *La drépanocytose*, John Libbey Eurotext, Paris, 1-11.

[6] Kimboko, M.J. and Ngindu, A.M. (2017) Drépanocytose: Généralités, Enjeux, défis et perspectives d'avenir. *Annales Africaines de Médecine*, **11**, e2734.

[7] Mwanaut, I., Bongenya, B., Bulanda, B., Chuga, D., Tshibumbu, C., Jean-Yves, K., Okanda, M. and Kamangu, E. (2019) Seroprevalence of HIV in Polytransfused Adult Sickle Cell Disease: Case of the Center of Mixed Medicine and SS Anemia of Kinshasa ARC. *Journal of AIDS*, **4**, 18-21. https://www.doi.org/10.15761/MCA.1000157