



RESEARCH ARTICLE

Association between Socio-Demography and Duration of Sickle Cell Disease Leg Ulcers in a Low Resource Setting

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ARTICLE INFO	ABSTRACT
Received: Jun 13, 2024	Sickle cell disease, leg ulcer is a form of chronic complication and constitute a major economic psychological challenge due to its protracted course. Incidence varies from one region to another. AIM: To determine the association between socio-demographic and duration of chronic leg ulcer in sickle cell disease patients in a low resource setting. A retrospective study involving patients seen at the sickle cell clinic, of University Calabar Teaching Hospital, Calabar over a year (January to December 2022). A questionnaire was used to obtain the following information Age, sex, socioeconomic status and duration of leg ulcer. The data obtained was entered into Microsoft Excel 2016 spreadsheet and SPSS version 26 software was used to analyse the data. Chi square was employed to see the association between SCD Leg ulcer, age, sex and socioeconomic status. P value was set at < 0.05. A total of 220 sickle cell disease patients were reviewed during the study period. 11 had chronic leg ulcer, with female preponderance median age of 37 years, with ulcer duration and monthly income ranging from 0 to >12 months and <\$100 to >\$500 respectively. Chronic leg ulcer is a serious problem of SCD and there is a strong association between the socioeconomic status and duration of leg ulcer in sickle cell patient. It is logical for managing physician to pay critical attention on the socioeconomic status of SCD patient with leg ulcer as this will enhance healing with better outcome.
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INTRODUCTION

Sickle cell disease (SCD) is the commonest haemoglobin disorders, comprises of a spectrum of structural inherited disorder due to alteration in the beta globin chain, resulting to the synthesis of hemoglobin S (HbS) [Akaba, 2020] This can exist either as homozygous or heterozygous states, the former also termed hemoglobin SS (HbSS), also known as sickle cell anemia, while the later heterozygous state, is due to inheritance of S Hemoglobin with other form of beta-globin gene, such as haemoglobin SC (HbSC), hemoglobin S β 0 -thalassemia (HbS β 0 -thal), hemoglobin S β + -thalassemia (HbS β + thal). HbSS is associated with more severe clinical manifestant ¹Leg ulcers is one of the chronic complication of SCD often affect the younger patients, might occur spontaneously, following trauma, and usually occur at the distal 1/3 of the leg (malleoli), and might affect the whole perimeter of the leg [Ladizinski, 2012]. The pathophysiology of chronic leg ulcers is multifaceted and the exact mechanism yet to be completely elucidated, but there is the accord that it is complicated [Koshy, 1989]. The prevalence of sickle cell leg ulcer vary from one geographically region from one region to another with respect to age, sex and socioeconomic status [Ogunkeyede et al; 2017]. Koshy et al reported 8-10% in North America. Furthermore similar study conducted by Kaliyadan et al reported 8% in Saudi Arabia [Kaliyadan et al; 2020]. Another study in northern Nigeria by Hassan reported 0.45% [Hassan, 2014]. There is also variation with the socioeconomic status as Delaney KMH reported low socioeconomic status [Delaney 2013]. Similar finding was also reported by [Olatunya, 2018]. However, this varies from the report from the study by [Kaliyadan et al; 2020] which reported no

significant association with socioeconomic status. Due to the paucity and inconsistency in the available information. Hence this study seek to establish the association between sociodemography and duration of leg ulcers among sickle cell disease patients.

MATERIALS AND METHODS

It was a retrospective study involving SCD patients whose records were retrieve from the haematology day care, surgery out patient clinic and accident and emergency unit of University Calabar Teaching Hospital (UCTH) Calabar over a one year period from January to December 2022. Study was Ethical approved by the UCTH Health Research and Ethics Committee. A proforma, was used to obtaine the following variables (sex age and socioeconomic status). The data obtained was entered into Microsoft Excel 2016 spreadsheet and was analysed using SPSS version 26 software. Chi square was employed to see the association between SCD patients with Leg ulcer, age, sex and socioeconomic status. P was set at < 0.05 .

RESULTS

Table 1

Mean Age – 34.55 ± 7.27 (SD) years

DEMOGRAPHICS	FREQUENCY (n=11)	PERCENTAGE
AGE RANGE		
10-19	1	9.09
20-29	1	9.09
30-39	7	63.64
40-49	2	18.18
Total	11	100.00
GENDER		
Male	2	18.18
Female	9	81.82
Total	11	100.00
ULCER DURATION		
0-4 Months	1	9.09
5-8 Months	8	72.73
>12 Months	2	18.18
MONTHLY INCOME		
< \$100	2	18.18
\$ 100 -299	3	27.27
\$ 300 - 499	4	36.36
≥ \$500	2	18.18

Modal age – 37 years

Median age – 37 years

Association between age and leg ulcer duration

Table 2

AGE RANGE	0-4 Months	5-8 Months	>12 Months	Total	Chi Square
10-19	0	1	0	1	$X^2 = 7.857$
20-29	0	1	0	1	$P = 0.249$
30-39	0	6	1	7	
40-49	1	0	1	2	
Total	1	8	2	11	

There is no association between the age of the sickle cell patients and the duration of leg ulcer ($X^2 = 7.857$, $p = 0.249$).

Association between Sex and Leg ulcer duration

Table 3

SEX	0-4 Months	5-8 Months	>12 Months	Total	Chi Square
Male	1	1	0	2	$X^2 = 5.118$
Female	0	7	2	9	$P = 0.077$
Total	1	8	2	11	

There is no association between the sex and the duration of leg ulcer ($X^2 = 5.118$, $p = 0.077$).

Association between monthly income and leg ulcer duration

Table 4

Monthly Income	0-4 Months	5-8 Months	>12 Months	Total	Chi Square
< \$100	0	2	0	2	$X^2 = 8.594$
\$ 100 -299	0	3	0	3	$P = 0.003$
\$ 300 - 499	0	3	1	4	
≥ \$500	1	0	1	2	
Total	1	8	2	11	

A significant association between the monthly income of the patients and the duration of the leg ulcer ($X^2 = 8.594$, $p = 0.003$)

DISCUSSION

Leg ulcer is a chronic complication of sickle cell disease and is said manifest during the second decade of life [Sackey, 2020]. The prevalence of SCD differ from one region to another. The index study show a prevalence of 5%. This is greater than that reported by Hassan et al in North-West Zaria ⁶. However less than the 7.5% and 9.6% reported in South-west and South-south geographical zones in Nigeria respectively but somewhat similar to the study conducted by [Olatunya. 2018]. This discrepancy might be due to the difference in study design. The mean age of our study is 27 years, this is similar to the study by [Hassan, 2014]. For Lemore the mean age was greater than the study by Olatunya and lower than the study conducted in Brazil by [Otoni Spiradad; 2022]. This can also be attributed to the study design but what is common in all study is that all affected patients are above 10 years. Our study also shows female predominant with female to male ratio 4.5:1. This is different from the study conducted in North-West by [Hassan, 2014]. This might be due to the poor healthcare seeking behavior among of males. The index study also shows that there is no association between age, sex and leg ulcer duration. Our study also revealed a significant association between socioeconomic status and duration leg ulcer. This is biologically plausible as those with low socioeconomic. The strength of this study is that it helps to establish the relationship between socioeconomic status such as income and chronic leg ulcer among sickle cell disease in low resource setting as this shows the implication of income vis a vis duration of ulcer. The weakness is the sample size as this is a pilot study.

CONCLUSION

Chronic leg ulcer is a chronic complication of SCD and there is a strong association between the socioeconomic status and duration of leg ulcer in sickle cell patient. It is this will enhance healing with better outcome. Biologically plausible for managing physician to pay critical attention on the socioeconomic status of SCD patient with leg ulcer as

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AK; Concept, literature review, and writing and Design, analysis and interpretation, and literature review

AE; Data collection and drafting and Interpretation of data and critical revision

OK; Read and literature search

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