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A descriptive study of Patients with Sickle Cell Disease SCD in Misan, Iraq, 2024

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Abstract

Sickle Cell Disease (SCD) is a genetically inherited disorder characterized by abnormal hemoglobin, which alters the morphology of red blood cells and affects their functionality. Globally, SCD represents a significant public health challenge. **Aim of the study:** to determine the characteristics and features of sickle cell disease patients who attend the hematological diseases center in the Misan Governorate. **Methods:** A descriptive file-based study was conducted in 2024, on 75 patients suffering from sickle cell disease attending the Hematological Disease Center\ Misan City, we reviewed the patients' files and collected the needed data. A special form was filled out regarding patient characteristics obtained from the patients or caregivers and their medical records after that data analysis was done. **Results:** The study found that 57% of patients were male while 43% of them were female, most of the cases in age groups 11-20 years while fewer cases in the age group above 40 yr. The study result revealed that 52% of the patients lived in a rural area while 48% lived in an urban area, The highest blood group of patients was O followed by A, B, and AB which was (37%,31%,29%, and 3% respectively, The study result was found that 58 patients received two drugs for treatment, while 17 patients were receiving one drug, about 60 of patients presented with sickle cell disease only. **Conclusions:** This study provides a critical overview of SCD characteristics in Amara city, emphasizing the interplay between demographic, clinical, and geographic factors.

Keywords: sickle cell disease, descriptive study, Iraq and Misan.

Introduction

Sickle Cell Disease (SCD) represents a major global health concern due to its significant morbidity and mortality, particularly in regions with high genetic predisposition to the disorder (1). SCD arises from a mutation in the hemoglobin beta gene, leading to the production of hemoglobin S, which causes red blood cells to become rigid and sickle-shaped. This abnormal morphology results in recurrent vaso-occlusive crises, chronic anemia, and end-organ damage (2). With approximately 300,000 infants born annually with SCD worldwide, the disease places a substantial burden on healthcare systems, especially in resource-limited settings (3).

Despite advances in diagnostic and therapeutic approaches, the management of SCD remains a significant challenge (4). The variability in clinical manifestations, influenced by genetic,

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environmental, and social factors, necessitates tailored interventions (5). In Iraq, where healthcare disparities persist, understanding the demographic and clinical characteristics of SCD patients is essential for improving patient outcomes and addressing public health priorities (6).

This study, conducted at the Hematological Diseases Center in Amara City, aims to analyze the demographic and clinical profiles of SCD patients to provide valuable insights into the local epidemiological landscape. By investigating variables such as age, gender, geographic distribution, and treatment regimens, the research seeks to identify patterns that can inform more effective disease management strategies. The findings will contribute to the broader literature on SCD while highlighting region-specific challenges and opportunities for intervention.

Method:

In a descriptive file-based study, conducted in 2024, on 75 patients with sickle cell disease who attended the Hematological Diseases Center in Misan City, we reviewed the patients' files and collected the needed data. A special form was filled out regarding patient characteristics obtained from the patient's files and their medical records, The information included in the study was age, sex, address, blood group & treatment. Data was collected and analyzed by using Excel Microsoft and SPSS version 20.0 data were presented as figures.

Results:

A total study sample was 75 patients with sickle cell disease who attended the Hematological Diseases Center in Amara city. Our study found that 57% of patients were males while 43% of them were females as in Figure 1.

Regarding patient age distribution: most of the cases are in the age group 11-20 years while fewer cases are in the age group above 40 yr. as shown in Figure 2.

The study result revealed that 52% of the patients lived in a rural area while 48% lived in urban areas as in Figure 3.

The blood group of patients was O followed by A, B, and AB, which were (37%,31%,29%, and 3% respectively) as shown in Figure 4.

The current study result found that 58 patients received two drugs for treatment, while 17 patients received one drug, as in Figure 5

Finally, the present study found that 60 of the patients presented with sickle cell disease only, and 15 patients presented with sickle cell disease and other hematological diseases as in Figure 6

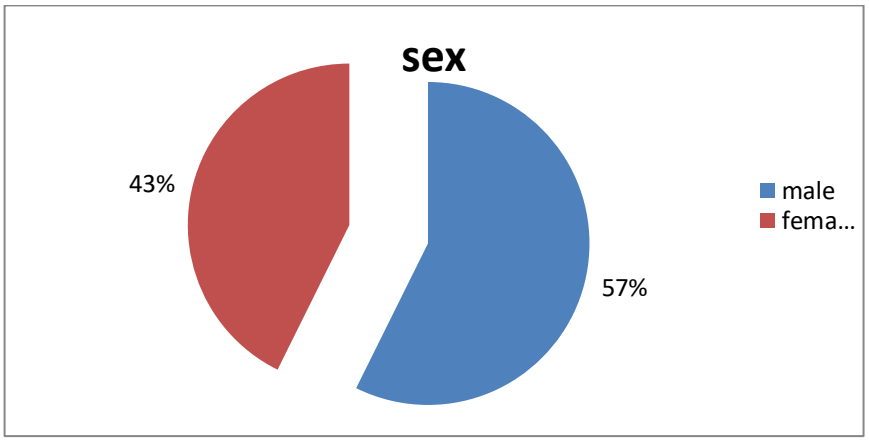

Figure 1: sex distribution of patients.

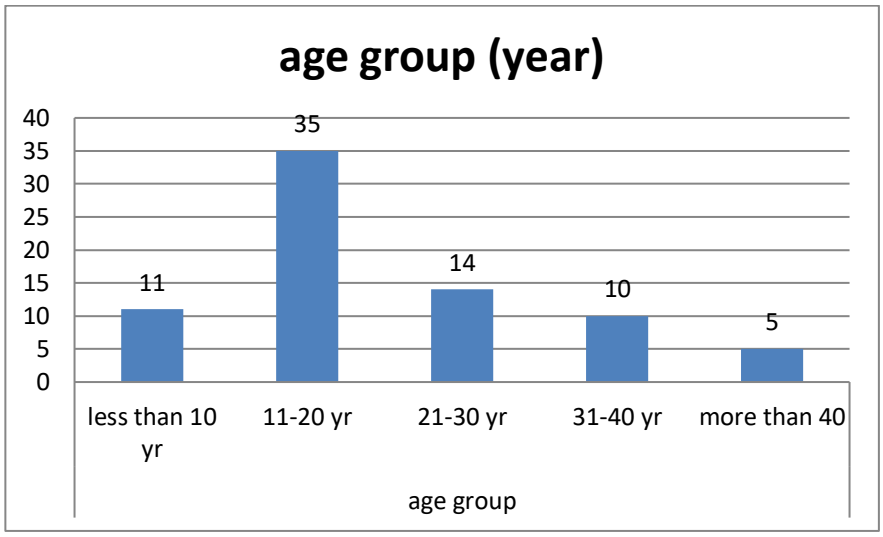

Figure 2: age group distribution of sample study.

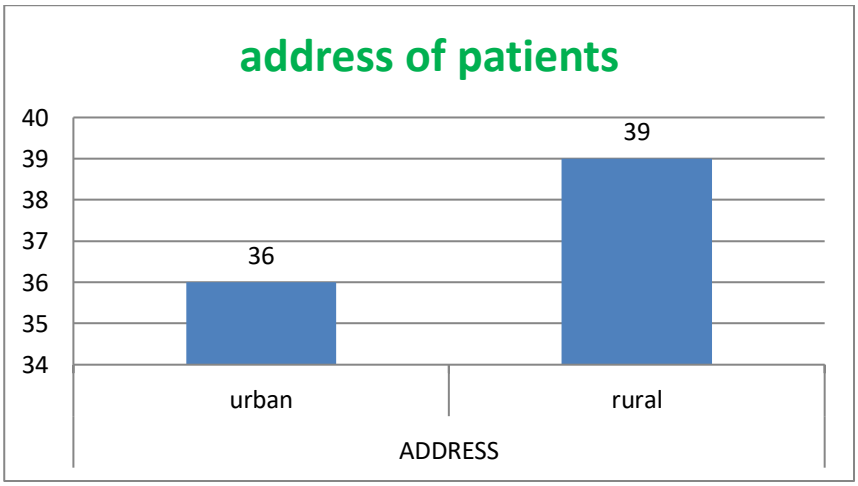

Figure 3: address distribution of sample study.

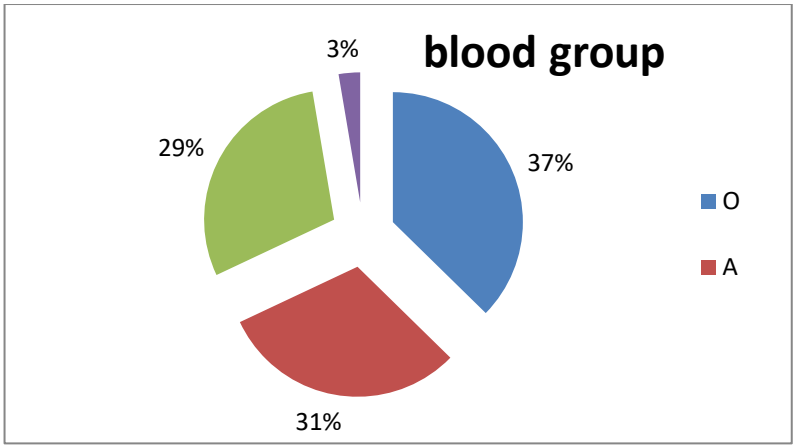

Figure 4: blood group distribution of sample study.

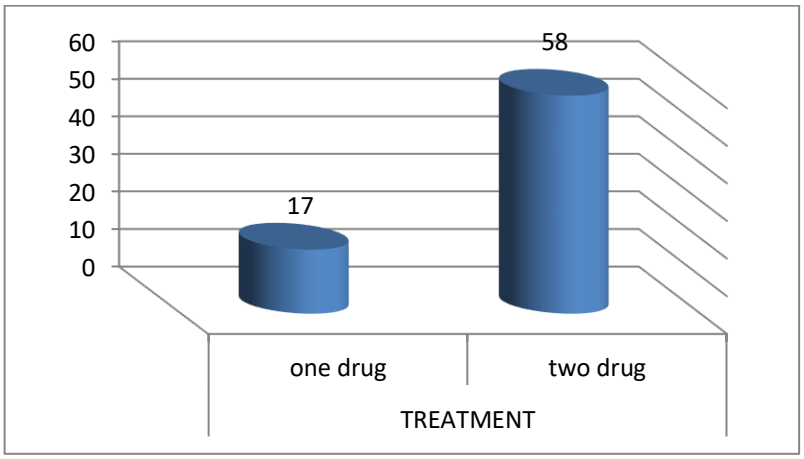

Figure 5: treatment of patients.

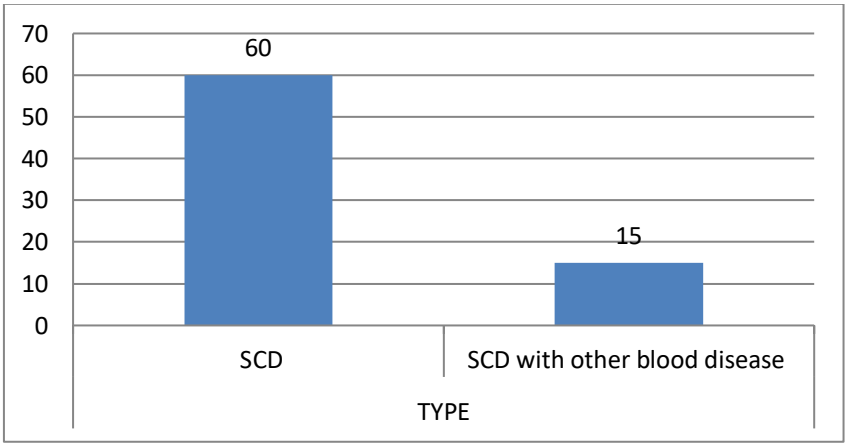

Figure 6: Sickle Cell Disease Presentation.

Discussion

Sickle cell disease is one of the highly distributed hereditary diseases (7,8). The sickle phenomenon is characterized by microvascular obstruction and impacts all organs and tissues of the body including the lungs and may result in deterioration of lung functions (9,10).

The study revealed several critical findings about the demographic and clinical profile of SCD patients in Amara city. First, the gender distribution indicated a slightly higher prevalence among males (57%) compared to females (43%). This finding aligns with studies suggesting possible gender-related differences in SCD presentation, which may be attributed to genetic, hormonal, or environmental factors (11,12).

The age distribution underscored the vulnerability of younger populations, with the majority of cases falling within the 11–20-year age group. This trend reflects the chronic nature of SCD and its early-life clinical manifestations. However, the low prevalence in individuals over 40 years could be indicative of premature mortality due to disease complications or underreporting in older age groups (13-15).

Geographical disparities were also evident, with 52% of patients residing in rural areas and 48% in

urban settings. The higher prevalence in rural areas may reflect limited access to early diagnosis and healthcare services, coupled with heightened exposure to environmental and nutritional risk factors. (16,17)

Blood group analysis revealed a predominance of group O among patients (37%), followed by A (31%), B (29%), and AB (3%). While there is limited evidence linking blood group distribution to SCD pathophysiology, these findings provide a basis for exploring genetic predispositions and transfusion compatibility challenges within the local population (18,19).

Treatment regimens predominantly involved the use of two medications in 58 patients, while 17 patients were on monotherapy. This trend highlights the complexity of managing SCD, which often necessitates combination therapies to address pain, prevent vaso-occlusive crises, and manage comorbid conditions. Moreover, the coexistence of SCD with other hematological disorders in 15 patients underscores the need for comprehensive diagnostic and therapeutic approaches (20-23).

Conclusion:

The findings of this study provide a critical overview of SCD characteristics in Amara city, emphasizing the interplay between demographic, clinical, and geographic factors. Future research should focus on longitudinal analyses to monitor disease progression and evaluate the efficacy of emerging treatments in this population.

Author Contributions:

The study design and performed experiments were done by Husam Al-hraishawi and Alaa Shamikh Hassan. In addition, all authors analyzed the data and wrote the manuscript.

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Ethics:

The study protocol was reviewed by the Human Ethics Committee of the College of Medicine, University of Misan, Iraq.

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Conflict of interest:

There is no conflict of interest.

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