



## ETIOLOGY AND OUTCOME OF SICKLE CELL CRISIS IN POST COVID PERIOD: A CASE SERIES

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**ABSTRACT** Sickle cell anemia patients can develop various crises due to various triggers, infections being one of them. In our tertiary care centre, we have observed that post covid, there has been a rise in the number of infections leading to crisis in sickle cell patients, presenting experience of managing such cases. Aims and objectives were to study the pattern of infections in sickle cell crisis admitted from June 2020 to October 2022, compare the data to pre-covid to study etiology, complications and outcome in these patients. The increase found in the number of sickle cell crises post covid and the worsening outcome of these patients is suspected to be related to increased susceptibility to other infections of the community post changes made in the immune machinery of the human body by the CORONA Virus itself.

### KEYWORDS :

#### INTRODUCTION

Sickle cell anemia patients are at risk of developing crisis such as Vaso-occlusive crisis (acute painful crisis), aplastic crisis, splenic sequestration crisis, hyper haemolytic crisis, hepatic crisis, dactylitis, and acute chest syndrome [1]. The recent coronavirus disease 2019 (COVID-19) outbreak has impacted millions across the globe, putting individuals with co-morbidities at particularly high risk, and patients with sickle cell disease are no exception [2]. In our tertiary care centre, we have observed that post covid, there has been a rise in the number of infections leading to crisis in sickle cell patients. Thus the study was conducted with the following objectives;

#### AIMS AND OBJECTIVES

1) To study the pattern of infections in sickle cell crisis admitted in post COVID period i.e. from June 2020 to October 2022 and compare the data to pre covid period. 2) To study etiology, complications and outcome in these patients.

#### METHODOLOGY

A retrospective study was carried out in Medicine ICU at a tertiary centre, of all the Sickle cell anemia patients admitted with crisis,

**Table 1:**

Sr no.	Gender	Decade of life	HIV, HbsAg, HCV	COVID RTPCR	K/C/O SCA ?	Final diagnosis	HbF level	Outcome
1	M	2nd	Neg	Neg	Newly diagnosed	Dengue MODS	-	Death
2	M	2nd	Neg	Neg	Yes	Pneumonia with ARDS	16.7	Recovery
3	F	2nd	Neg	Neg	Yes	AFI MODS	-	Death
4	F	2nd	Neg	Neg	Yes	Pneumonia with ards	15.5	Recovery
5	M	2nd	Neg	Neg	Yes	Enteric with mods	-	Recovery
6	M	2nd	Neg	Neg	Yes	Septic shock	9	Recovery
7	M	2nd	Neg	Neg	Yes	Dengue MODS	-	Death
8	F	3rd	Neg	Neg	Newly diagnosed	Pneumonia with missed abortion	-	Recovery
9	F	2nd	Neg	Neg	Yes	Septic shock	-	Death
10	F	2nd	Neg	Neg	Yes	Pneumonia with ards	-	Death

The pattern of infection was ranging from dengue NS1 + with multi-organ failure in 2 patients, pneumonia with ARDS (acute respiratory distress syndrome) in 3 patients, pneumonia with missed abortion in 1 patient, enteric fever with multi-organ failure in 1 patient, AFI with multi-organ failure in 1 patient, septic shock in 2 patients. Covid Vaccine was taken by 8 patients. Additional required vaccines (pneumococcal, meningococcal, Hib) were taken by 1 patient who was splenectomised.

All patients were suspected for COVID but their RT PCR report was

during the post COVID period i.e. from June 2020 to October 2022 and data was compared to pre covid period (2018, 2019). During the post covid period 10 patients of SCD were admitted with crisis in Medicine ICU. Their medical records and investigations were analysed for age, presenting symptoms, pattern of infection, duration of illness, compliance to treatment, splenectomy status. Outcomes of these patients were noted in the form of organ failure, response to treatment and death.

#### CASE SERIES

In the post covid period, Out of all the 10 patients of sickle cell anemia admitted in crisis; 5 were males, 5 females. The triggering factor in all of them was fever, which did not respond to oral antibiotics on an average 4 days prior to admission. These patients eventually got admitted with sepsis. 9 patients were in the second decade of life, 1 in the third decade. Only 1 patient was splenectomised and 2 patients were first time diagnosed to have sickle cell anemia during current admission. Only 2 patients were compliant to hydroxyurea given on OPD basis, rest all had lost to follow up during covid. 2 patients had recurrent admissions within 6 months.

negative. They were also found negative for HIV, HbsAg, HCV. Duration of hospital stay was ranging from 24 hours to 7 days. These patients received higher antibiotics, oxygenation, 7 patients required invasive mechanical ventilation. Out of the available data, a single blood c/s in 3 patients showed no growth within 48 hours. HbF levels of 3 patients were 9, 15.5 and 16.7 respectively. These 3 patients had a good outcome and recovered. Liver Function tests in 4 out of 10 patients were suggestive of direct as well as indirect hyperbilirubinemia suggestive of liver involvement as well as hemolysis respectively, 6 had only indirect

hyperbilirubinemia. Overall, there were 5 deaths, out of which most of them occurred within 72 hours and had multi organ involvement and 5 patients recovered. Infection was found to be the precipitating cause in 100 % of the patients in our study. Mortality was not dependent on age. In the pre covid period, 3 patients were admitted to the medical ICU with sickle cell crisis, and the outcome in all 3 of these patients was recovery.

## CONCLUSION

As per this study, we have found sudden increase in number of sickling crises in the post covid period. This increase in crises and associated poor outcome could be related to change in the immunity profile of patients caused by the corona-virus itself. Corona virus was found to decrease immunity to other viral and bacterial infections during or immediately after the COVID infection. Although, none of these patients had any history of admissions with covid, it could probably be related to change in immunity profile of the entire population.

## REFERENCES

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