oseltamivir, blood transfusion and enoxaparin were utilized as therapy and patients did not receive specific medications for covid-19 infection.

Conclusion: We expected that Sars-Cov-2 infection would have a worse effect in SCD patients due to their comorbidities and their predisposition to worse outcomes in respiratory infections. That hypothesis though is not confirmed neither from this study nor other authors.

Table 1: Characteristics of participants with SCD at ED who tested PCR positive and PCR negative for SARS-CoV-2

	PCR + (N=5) *	PCR - (N=48) *	All
Age	17 [9; 16]	11 [7; 14]	11[6;14]
Gender (M/F)	3/2	16/8	19/10
Genotype			
SS	4 (80)	38 (79.1)	22 (75.8)
Sβ+	0	2 (4.1)	2 (6.9)
SC	1 (20)	7 (14.5)	5 (17.2)
Comorbidities			
Stroke	0	1 (2)	1 (3.5)
Cardiomyopathy	0	7 (14.8)	5 (17.5)
Hypoxemia	0	11 (23)	4 (13.8)
Nephropathy	0	3 (6.25)	1 (3.5)
Pulmonary hypertension	0	0	0
Previous treatment			
HU	4 (80)	30 (62.5)	19 (65.5)
Chronic transfusion	0	8 (16.6)	4 (13.8)

N (%); Median [percentile 25th;percentile 75th]; SS: sickle cell anemia; SC: hemoglobinopathy SC; Sβ+: S-β+ thalassemia. One of the subjects tested inconclusive and didn't repeat the test. *One patient can have more than one admission during the study period.

Table 1. Characteristics of participants with SCD at ED who tested PCR positive and PCR negative for SARS-CoV-2

Table 2: Comparison of laboratory values of participants tested PCR positive and negative for SARS-CoV-2 between last routine visit and admission in the ED

Test	Group	Last visit	Admission	P value last visit vs admission
Hb (g/dL)	PCR +	9.4 [8.8;11.2]	9.8 [8.4;11.3]	1.000
	PCR -	9,0 [7.9;10.2]	8.4 [7.6;9.5]	0.255
	All	9,0 [7.9;10.3]	8.5 [7.8;10.3]	0.312
	P value PCR + vs PCR -	0.623	0.216	
MCV(fL)	PCR +	107.2 [90;108.3]	92.3 [86.5;100.5]	0.310
	PCR -	85.4 [79.5;94.6]	86.1 [80.6;92.8]	0.964
	All	88.6 [79.8;100.7]	86.7 [80.7;93.1]	0.813
	P value PCR + vs PCR -	0.112	0.362	
Leucocytes (cells/mm³)	PCR +	7,510 [7,470;14,040]	12,820 [12,340;13,220]	0.690
	PCR -	8,785 [7,112.5;11,740]	12,320 [6,490;15,430]	0.170
	All	8,190 [7,170;12,250]	12,550 [8,765;14,725]	0.097
	P value PCR + vs PCR -	0.801	0.900	
Neutrophils (cells/mm³)	PCR +	3,910 [3,510;5,602]	7,690 [7,420;9,500]	0.222
	PCR -	3,935 [2,477;5,092]	6,650 [3,500;9,620]	0.021
	All	3,910 [2,510;5,160]	7,160 [4,732;9,590]	0.004
	P value PCR + vs PCR -	0.564	0.447	
Lymphocytes (cells/mm³)	PCR +	3,680 [2,700;4,183]	2,810 [2,340;3,030]	0.421
	PCR -	3,795 [2,780;5,960]	2,730 [2,190;4,350]	0.119
	All	3,720 [2,700;5,900]	2,770 [2,227,5;3,637]	0.049
	P value PCR + vs PCR -	0.885	0.795	
Platelets (x10³cells/mm³)	PCR +	400 [320;464]	370 [303;417]	0.841
	PCR -	366 [240;484]	382 [216;471]	0.927
	All	368 [241;477]	380 [239,5;468]	0.946
	P value PCR + vs PCR -	0.889	0.753	
TB (g/dL)	PCR +	1.72 [1.42;2.80]	4.37 [2.80;5.90]	0.857
	PCR -	1.52 [0.82;2.05]	2.23 [1.72;2.80]	0.137
	All	1.55 [0.82;2.38]	2.23 [1.52;3.28]	0.149
	P value PCR + vs PCR -	0.470	0.889	
CB (g/dL)	PCR +	0.48 [0.33;0.49]	0.61 [0.47;0.74]	0.696
	PCR -	0.48 [0.30;0.51]	0.61 [0.45;0.76]	0.040
	All	0.48 [0.29;0.51]	0.61 [0.35;0.81]	0.028
	P value PCR + vs PCR -	1.000	1.000	
NCB (g/dL)	PCR +	1.23 [1.09;2.32]	3.76 [2.36;5.16]	0.857
	PCR -	1.13 [0.68;1.685]	1.53 [0.845;2.335]	0.462
	All	1.13 [0.76;1.83]	1.53 [0.96;2.7]	0.426
	P value PCR + vs PCR -	0.418	0.667	

Median [percentile 25th;percentile 75th]; vs: versus Hb: hemoglobin (g/dL); MCV: mean corpuscle volume; TB: total bilirubin; DB: conjugated bilirubin; CB: non conjugated bilirubin NCB.

Table 2. Comparison of laboratory values of participants tested PCR positive and negative for SARS-CoV-2 between last routine visit and admission in the ED

The authors do not declare any conflict of interest

P-068 SOCIO-ECONOMIC ASPECTS OF SICKLE CELL DISEASE CASES IN ODISHA, INDIA

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Purpose: Occurrence of sickle cell gene in Odisha state is known since 1952. It is very widespread among the people of western districts of the state. A great deal of literature on distribution, clinical presentation and haematological parameters of sickle cell disease cases have been documented. Due to varied morbidities the sickle cell disorder patients regularly visit the health centres frequently. The gene frequencies in certain caste groups have been reported to be very high and probably due to various social and traditional beliefs. Further most of the patients were from low income groups and rigid cultural tradition. Keeping in view this study was performed to explore some of the socio-economic aspects of such debilitating health problem in the state.

Materials and methods: The various haemoglobinopathy cases including sickle cell disorder cases reporting to Government Medical college hospitals (Burla and Berhampur) and district headquarters hospital, Balasore, Sishu Bavan hospital, Bhubaneswar, representing the different part of the state were taken for the study. Relevant data pertaining to the study were collected by applying questionnaire method from either of the parents of 100 haemoglobinopathy cases from Balasore, 98 cases from Bhubaneswar, 100 cases from Burla and 90 cases from Berhampur.

Results: Majority of sickle cell disorder cases were from western and southern districts of the state. However such cases were also reported from the eastern and northern districts of the state also. Nineteen percent (19%) of parents of Beta thalassaemia patients had consanguineous marriage, where as it was 10% among the parent of sickle cell patients. Because of the disease a good number of children were not attending school (Beta Thalassaemia-24%, Sickle cell disease-28%) and school dropouts were 3% and 5% respectively. Forty two (42%) percentage of sickle cell patients were having blood group O+ and the blood groups O+ and B+ were equally (38%) present among the studied thalassaemia patients. More than eighty percent of parents' income of sickle cell disorder patients was less than Rs.4000/- per month and only 2% of such parents' income exceeds the income range of above Rs.10000/- per month. Father's of the studied sickle cell patients were not well educated, 34% ware illiterate and 45% received primary education. Similarly Forty percent (40%) mothers were illiterate and 43% were having primary level of education.

Conclusion: The sickle cell disease patients were reported from all the regions of the Odisha state and majority were from western part of the state. Contrary to the belief very few numbers of consanguineous marriages were observed among the parents of sickle cell disease cases. The parents of sickle cell disease cases were facing heavy financial burden for proper clinical management. The literacy levels of the parents were also very inadequate. The need of blood transfusion particularly of the B+ and O+ blood groups is also very high. It is highly desirable to initiate social intervention and economic support for these patients and their parents by the government as well as non government organisations of the state. The authors do not declare any conflict of interest

P-069 EFFECTS OF QUERCETIN IN TRANSCRIPTIONAL REGULATION OF FETAL HEMOGLOBIN

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Purpose: Sickle cell disease (SCD) is a genetic blood disorder that affects the shape and transport of red blood cells (RBCs) in blood vessels, leading to various clinical complications. The pharmacological reactivation of Fetal Hemoglobin (HbF) is considered to be a viable therapeutic method in SCD. In this regard, hydroxyurea (HU), a powerful ribonucleotide reductase inhibitor, is being employed as a HbF-inducing pharmaceutical. However, its cytotoxicity, carcinogenic potential and variable effects limit its use. Thus, a major challenge today is to identify new agents, with high HbF-inducing activity, low cytotoxicity, and available in low- and middle-income countries, such as natural compounds. Quercetin, a natural flavonoid, has been identified as a potential HbF inducer. The main aim of this work was to evaluate Quercetin role in the reactivation of fetal hemoglobin (HbF) by analyzing the expression of globin and HbF regulatory/silencing genes.

Materials and methods: Gene expression was studied in K562 cells previously exposed for 24 hours to two concentrations of quercetin (0.2 and 20 mM) dissolved in DMSO and 25 µg/ml hydroxyurea (HU) as a positive control. The exposed cells and controls were collected, and cell viability and proliferation parameters were evaluated microscopically. Variation in gene expression after CPMLE exposition was quantified from the total RNA isolated from cultured cells, using quantitative Real Time PCR. The studied genes were α, β and γ-globin genes, as well as the HbF regulators genes MYB, KLF1, BCL11A and BGLT3, and GAPDH as reference.

Results: The proliferation rates were calculated as the ratio between the value at 24h and the initial number of cells (1X105 cells/well). The results for the quercetin concentrations of 0,2 and 20 mM were of 1,95 and

0,967, respectively, while for vehicle (DMSO) the value was 2,40. The percentages obtained for the viability, as assessed by trypan blue staining, were of 95,18% in vehicle, 91,40% and 88.99% for the quercetin concentrations of 0,2 and 20 mM, respectively. Altogether, these results indicate that quercetin slightly affects the proliferation and viability of the K562 cell line at both concentrations, although without cytotoxic effects. Transcriptional analysis demonstrated that both concentrations inhibit BCL11A, MYB, KLF1 and HBB gene expression levels; and increase the expression of HBG and BGLT3. The effect of quercetin on BCL11A gene expression was similar to the effect of HU, however the expression of MYB, KLF1, HBB and BGLT3 genes differed between the two molecules. In addition, the 0.2 mM concentration induced an overexpression of the HBA gene, similar to the effect of HU.
Conclusion: The results presented are preliminary, however it is possible to observe that quercetin can modulate the expression of HbF, thus potentially constituting an effective alternative treatment of SCD.
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P-070 PLANNING IMPLEMENATION OF PEDIATRIC-TO-ADULT CARE TRANSITION IN SICKLE CELL DISEASE IN BRAZIL

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Purpose: In high-income countries (HICs), advances in sickle cell disease (SCD) care have led to >95% survival of children to age 18 years. In low-and-middle income countries (LMICs), like Brazil, survival is approaching 80% by age 18. With higher survival rates, a growing number of young adults need to be prepared (i.e., build health literacy, improve self-efficacy and gain transition skills), transferred, and integrated into adult care. Implementation of evidence-based health care transition (HCT) practices can address this need. Despite the increasing SCD pediatric survival in LMIC, no systematic evidence-based HCT practices are in place. While guidelines to support HCT in HICs exist, the readiness for implementation of HCT practices is unknown in LMICs, therefore implementation cannot be appropriately planned or their environment prepared.
Materials and methods: To address the need for implementation of HCT in Brazil, we plan to undertake a 3-Aim process: Aim 1) Select SCD-specific evidence-based practices for HCT from HICs, Aim 2) Identify barriers and facilitators to implement HCT for SCD in 2 Brazilian institutions (Instituto Estadual de Hematologia, HEMORIO, Rio de Janeiro and Universidade Federal de Sao Paulo, UNIFESP, Sao Paulo), and Aim 3) Adapt evidence-based practices for HCT to the Brazilian institutions. We will begin by examining the contextual factors that influence the successful implementation of HCT practices through surveys to providers, patients, and clinic leadership, with complementary focus groups with a selected sample (Table 1). To investigate the barriers and facilitators, we will conduct a QUANTITATIVE->qualitative mixed-methods evaluation, guided by the Exploration, Preparation, Implementation and Sustainment (EPIS) framework (Figure 1). In addition to examining the context of each site, we will perform a literature synthesis and investigate the mechanisms of action (i.e., what works and how it works) of HCT practices in a HIC program (St. Jude Children's Research Hospital, Memphis, TN). Using implementation and mechanism mapping, we will define the core components and the adaptable steps required to build capacity and expertise to implement HCT practices in Brazil. Additional focus groups with patients, providers, and clinic leaders at each Brazilian hospital will examine the fit of the adapted approach to their organization. To complement the mechanism mapping process, we will collect data to map the implementation steps and cost for implementation using the Stages of Implementation Completion (Chamberlain P, et al. ImplementSci.2011;6:116.) measure and its associated cost mapping tool, the Cost of Implementing New Strategies to track the entire implementation process.
Results: Our research and implementation teams have been assembled and data collection is underway. Ongoing results will be presented.
Conclusion: Evidence-based HCT services are needed to address the higher survival rates among young adult populations with SCD in LMICs. Our project will be the first to rigorously evaluate the readiness for implementation of HCT in LMIC and to design a context-specific HCT tool for Brazil. Finally, documentation of milestones of pre-implementation will allow us to track and compare the effectiveness and cost of future HCT implementation strategies, ensuring the optimal implementation and sustainability of HCT programs in LMICs.

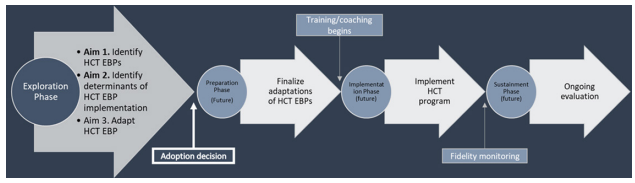

Figure 1. EPIS as the guiding framework for implementing HCT for SCD in LMICs. We will identify Evidence-based practices (EBPs) for HCT in SCD, assess determinants of implementation in Brazil and begin adapting HCT EBPs for their context. (Aarons GA, et a

EPIS Constructs	Goals	Measures
Innovation Factors	Identification of HCT evidence-based practices for SCD	Evidence-based analysis from St. Jude transition program and literature synthesis
Inner context	Evaluation of clinic capacity	Got Transition® HCT Activities questionnaire, HCT needs assessment for LMIC
	Identification of provider factors (providers' knowledge, motivation and opportunities in implementing HCT for SCD)	Capability, Opportunity, Motivation – Behavior/Behavior Change Wheel (COM-B/BCW)[2] and Measure of Innovation-specific Implementation Intentions (MISII)[3]
Outer Context	Identification of organizational resources, monitoring services, commitment to work, work culture, leadership	Context Assessment for Community Health (COACH)[4], focus groups
	Informal payment	COACH, National policies for HCT

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Table 1. Mapping of study measures according to the EPIS constructs.
A. HEITZER declares a conflict of interest:
Consultancy, Expert: Global Blood Therapeutics

P-071 HEMATOLOGICAL PROFILE AND ITS INTERRELATIONSHIPS WITH HEMOGLOBIN SUBTYPES IN SICKLE CELL DISEASE PATIENTS OF CHHATTISGARH

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Purpose: Sickle cell disease (SCD) is one of the known autosomal recessive hereditary disorders of hemoglobin known to associate with serious complications and responsible for recurrent hospitalization, considerable morbidity and mortality in the affected individuals. Despite of being a monogenic autosomal recessive genetic disease, it is one of the most heterogeneous diseases known. In the face of high prevalence and heterogeneity in the area, there are limited studies addressing the hematological pattern of sickle cell disease for proper therapeutic management and treatment. Therefore, the study aims to establish a baseline data of hematological values in pediatric age group (1 - 14 years) and adults (> 14 years) and to establish an interrelationship between red cell indices with hemoglobin subtypes in sickle cell disease (SCD) in Chhattisgarh, India.
Materials and methods: Following the preliminary screening by sickle solubility test, blood samples of positive suspected cases were collected in EDTA tubes for hemoglobin fractionation by cation exchange high performance liquid chromatography (HPLC) and hematological indices by the automated cell counter.
Results: The results indicated that out of total 4674 sickle cell disease cases, 3338 (71.42 %) cases were of the pediatric group while 1336 (28.58 %) adult cases. Surprisingly, SCD subjects showed high fetal hemoglobin (average 18.68 %) with no significant difference in both the age groups. However, a significant difference was observed in red cell indices with moderate total hemoglobin (average Hb 9.5 %) and red cell indices in both the groups. Furthermore, the result of correlation