Bio chemistry **Abstract**
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"ROLE OF SODIUM AND POTASSIUM AS A PROGNOSTIC BIOMARKER OF SICKLE CELL DISEASE"

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Sickle cell disease (SCD) affects millions of people worldwide. It is the second most common haemoglobinopathies next to thalassaemia in India. In Maharashtra the prevalence of disease ranges from 1.9% to 33.5% . We are residing in an endemic zone and the prevalence of sickle cell anemia here in Vidarbha region of Maharashtra is from 9.4% to 22.2%. In addition to the abnormality in hemoglobin, SS erythrocytes exhibit changes in membrane permeability, possibly owing to alterations in the membrane cytoskeleton. It has been well documented that deoxygenated sickle erythrocytes exhibit increased Na and K fluxes, with net cellular Na+ gain and K+ loss Sodium (Na+) regulates the amount of total body water and plays a critical role in electrical communication especially in the brain, nervous systems and muscles. The proper level for potassium is necessary for normal cell function. In sickle cells, an abnormal activation of potassium chloride (KCl) co-transport system was proposed to be involved in cell potassium (K+) loss and dehydration. The study is aimed to know the change in the level of sodium and potassium as biomarker in patients of Sickle cell disease with possible prognostic and pathophysiological role.

Aims and objectives:To study the role of potassium and sodium as a prognostic biomarker in sickle cell patients and To study the relation of these electrolytes with the severity of crisis .

Materials and Methods: 30 patients suffering from Sickle cell disease had been taken from special clinic run for sickle cell patients by our tertiary care rural hospital ABVRH Sawangi (Meghe). 30 sickle cell negative patients has been taken as control group. Serum sodium and potassium has been estimated by ABL100 Radiometer.

Results & conclusion: In this study, there was a statistically significant decrease ($P < 0.001$) in sodium concentration of sickle cell patients(131.6±3.1 mEq/l) when compared with normal group(137.4±3.9 mEq/l) and significant increase ($P < 0.001$) in the concentration of potassium in sickle cell patients(4.6±0.4 mEq/l) when compared with normal group(3.9±0.5 mEq/l). It could be inferred that sodium and potassium is necessary in the management of the sickle cell disease patients with a comprehensive medical care and management approach, the health status and life expectancy of these patients can be improved considerably, with easier management of these individuals.