

[Saudi Med J](#). 2003 Apr;24(4):376-9.

Plasma and red blood cells membrane lipid concentration of sickle cell disease patients.

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Abstract

OBJECTIVE:

The present study aimed to determine the concentration of plasma and red blood cells (RBCs) membrane lipids in Saudi sickle cell disease (SCD) patients.

METHODS:

This study was carried out at the Hematology Clinic, King Abdul-Aziz University Hospital, Jeddah, Kingdom of Saudi Arabia from October 1998 to October 1999. Lipid concentrations were determined in plasma and RBC membrane of 81 SCD patients and 66 normal healthy matched individuals (control). Different lipid parameters were measured according to standardized enzymatic assay methods.

RESULTS:

The plasma concentrations of total cholesterol and low density lipoprotein cholesterol of SCD patients were significantly decreased ($p < 0.001$), whereas the plasma concentrations of high density lipoprotein phospholipids were significantly increased ($p < 0.001$). The plasma concentrations of apo A and apo B were significantly decreased ($p < 0.001$) in SCD patients. However, the concentration of total cholesterol of RBC membrane was significantly increased ($p < 0.001$) in SCD patients, while the phospholipid content was significantly decreased ($p < 0.001$).

CONCLUSION:

The significant increase of RBC membrane cholesterol concentration in SCD patients possibly is responsible to the change in RBC membrane fluidity that may play a direct role in the sickling phenomenon of RBCs in SCD.