

STUDY OF INITIAL LYSIS TO INVESTIGATE OSMOTIC FRAGILITY IN ERYTHROCYTES OF CHRONIC MYELOID LEUKEMIA PATIENTS ASSOCIATED WITH ANEMIA

N Wijayasiri^{1#}, S Bandara¹, D Kottahachchi¹ and Y Costa²

¹Department of Medical Laboratory Sciences,
Faculty of Allied Health Sciences, General Sir John Kotelawala Defence University

²Consultant Hematologists, Department of Hematology,
Colombo North Teaching Hospital

[#]*acero447@gmail.com*>

Chronic Myeloid Leukemia (CML) is a hematological malignancy. Some studies have reported structural abnormalities in the erythrocyte membrane in CML which may contribute to its anemia. This study was performed to determine the erythrocyte membrane fragility of CML patients associated with anemia using Osmotic Fragility (OF) test. An experimental study was carried out between 20 voluntary Philadelphia chromosome positive anemic CML patients and 25 voluntary healthy controls. OF test was performed; median corpuscular fragility (MCF) and initial lysis were obtained. The data were analyzed by SPSS software version 20.0. The MCF of controls were within the reference range (Mean 4.23, SD 0.11) and for the patient group, the MCF values were ranged in 3.67-4.60 g/l (Mean 4.22, SD 0.38). The initial lysis values of the control

group were within the range of 5.0-6.0 g/l with mean value of 5.36 g/l (SD 0.42) and the patients' initial lysis values were within 6.00-8.00 g/l with mean value of 7.07 g/l (SD 0.69), representing a significant difference between the control and the patient group (Non parametric test; $P=0.000 < 0.05$). However, the MCF of the control and the patient group did not provide a significant difference. Initial lysis plays an important role in the OF test as it could detect hemolysis in advance. The significant increase in initial lysis values in the patients group compared to controls may have been resulted from a sub population of erythrocytes with defected membranes.

Keywords: Chronic Myeloid Leukemia, Erythrocyte Membrane Fragility, Initial Lysis